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AF TO 31P1-4-108-178-1
FAA TI 6345.1 V29

TECHNICAL MANUAL

USER'S GUIDE
RADAR DATA ACQUISITION
SYSTEM OPERABILITY TEST (RDASOT)

DOPPLER METEOROLOGICAL RADAR
WSR-88D

UNISYS CORPORATION
CONTRACT 50-DMNW-8-00032

This revision incorporated TP-1 and Software Build 10.0 changes.

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FOREWORD

This technical manual provides operators with an overview of Doppler Meteorological Radar WSR-88D RDASOT. This manual was prepared in accordance with the content requirements of MIL-M-38798B and the format requirements of MIL-M-38784B, as amended by TMCR AF TM-86-01/ NEXRAD (June 1987). It consists of four chapters and Appendices.

Chapter 1 Introduction. This chapter describes the organization of the manual. Lists the interface control documents and the Concurrent Computer Corporation publication associated with the manual.

Chapter 2 Functional Description of RDASOT. This chapter describes the RDASOT mode of operation and main menu and selections.

Chapter 3 Running RDASOT. This chapter describes the input request identification, RDASOT commands, menu line selection, error message paging, RDASOT operator inputs, normal termination, TERM command, and KILLSOT commands.

Chapter 4 Error Message Format. This chapter describes the error message format and error categories.

Chapter 5 Test Control. This chapter describes selecting subsets, test options, and subset execution.

Appendix A. Diagnostic Menus. Includes typical menus from the diagnostic routines.

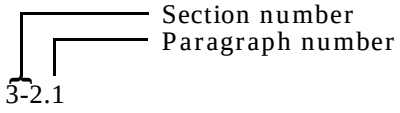
Appensix B. Calibration Menus and Displays. Includes typical calibration menus and displays.

Appendix C. Manual Control and Display Menus and Displays. Includes typical manual control and display menus.

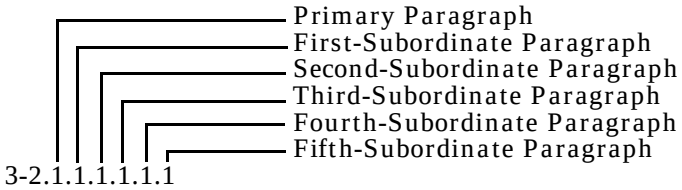
This manual is one of a family of technical manuals which provide various levels of description, operation, maintenance, and logistics information on the WSR-88D. Refer to TO 31-1-141, Basic Electronic Technology and Testing Practices, for any basic electronic technology or testing practice that is not fully described in these documents. The WSR-88D technical manual family is defined and discussed in the System Manual, NWS EHB 6 500, Section 1-4.

The format of this technical manual is as follows:

- Since sections represent the major content divisions of the chapter, they are formatted as physically-separate standalone elements.
- Sections are numbered as subdivisions of the chapter or appendix. The section numbering system consists of two digits separated by a hyphen. The first digit indicates the chapter, the second digit indicates the section. Thus, Section 3-2 represents the second section of Chapter 3.
- Paragraph numbering is by section rather than by chapter. The basic numbering system consists of three digits, where the first two digits identify the section



- A decimal paragraph number system is used to identify paragraph subordination



- Pages, tables, and figures are numbered by chapter. The number consists of two digits separated by a hyphen. The first digit identifies the chapter. The second digit identifies the page, table, or figure.

SAFETY SUMMARY

GENERAL SAFETY

The following are general safety precautions that are not related to specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUITS

Maintenance personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside the equipment with the high voltage supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the off position, due to charges retained by capacitors. To avoid casualties, always remove power and discharge by grounding a circuit before touching it.

DO NOT SERVICE OR ADJUST ALONE

Under no circumstances should any person reach into or enter an enclosure for the purpose of servicing or adjusting the equipment except in the presence of some one who is capable of rendering aid.

RESUSCITATION

Personnel working with or near high voltage should be familiar with modern methods of resuscitation. Such information may be obtained from the Red Cross or Heart Association. This knowledge may save a life.

PERFORM WORK EFFICIENTLY

When working in areas designated as hazardous, perform work using the proper safety procedure. Be thoroughly familiar with the procedures required for the task before entering the area.

SECURE ALL MATERIAL WHEN NOT IN USE

Secure all tools, chassis, and covers before operating equipment.

RESTORE ALL INTERLOCKS

Restore all interlock switches to normal operating condition immediately upon completion of work on the unit involved.

DO NOT USE METAL TOOLS NEAR EXPOSED PARTS

Do not use brushes, brooms, or other tools that have exposed metal parts within four feet of any electrical equipment having exposed current-carrying parts.

ELECTRICAL SHOCK HAZARDS

Prime power voltages and high voltages within cabinets can cause death or severe injury. These voltages are contained in the RPG area. Warning signs and labels are located on the guards and barriers to alert personnel of the potential hazard. DO NOT DISREGARD THESE WARNINGS. Ensure that safety interlocks, barriers, and guards are not bypassed.

Extremely high voltages are present in the UCP CRT that can cause death or severe injury. Warning labels and interlocks are present to prevent electrical shock. DO NOT BYPASS INTERLOCKS.

The following warnings appear in the text of this manual and are repeated here for emphasis:

WARNINGS

Lethal voltages (from commercial power, CRT high-voltage power supplies and low-voltage high current power supplies) exist in many RPG Group equipments. Observe appropriate safety precautions at all times to ensure personnel safety.

AC power is still applied to the RPG cabinet power supplies. Observe appropriate safety precautions at all times to ensure personnel safety.

The following caution appears in the text of this manual and is repeated here for emphasis:

CAUTIONS

This procedure will erase all existing files from the disk prior to the introduction of the new software. Disk backups must be mode prior to the execution of these instructions.

The volume mnemonic must not be a previously defined logical unit name OPT0, SYS0, DSC0 etc. Do not name any two disks the same.

Chapter 1
INTRODUCTION

The Radar Data Acquisition System Operability Test (RDASOT) of the Next Generation Weather Radar (NEXRAD) System is an off-line program designed to determine the status of the hardware and to enhance its maintainability. RDASOT, executed from the system console, consists of diagnostic tests, calibration tests, and maintainability aids. Each of these can be executed in any sequence and any number of times. The diagnostic and calibration tests enable the operator to isolate problems within the RDA hardware and to perform limited calibration functions. The maintainability aids allow manual control of certain equipment as well as display of selected data.

Section 1-1 Organization Of User Manual

Chapter 2 is a functional description of RDASOT.

Chapter 3 contains directions for running RDASOT.

Chapter 4 describes error message reporting.

Chapter 5 is a description of the test control.

Appendices A, B, and C contain illustrations of menus and displays which are referenced from the text.

Section 1-2 Interface Control Documents

The following Interface Control Documents are related to RDASOT:

1208279	Maintenance Console/RDASC Processor
1208300	Signal Processor/RDASC Processor
1208311	Antenna Pedestal/RDA Control
1215929	RDA/RDA Interprocessor.

Section 1-3 Concurrent Computer Corporation Publication

48-471 F00 R00 0S/32 System Messages

Chapter 2
FUNCTIONAL DESCRIPTION OF RDASOT

The RDASOT program displays menus for operator selection, controls the execution of each task, and processes operator input. RDASOT is divided into three major functions:

a. Diagnostic tests

b. Calibration tests

c. Manual control and display.

The diagnostic tests allow the operator to test the operability of each piece of hardware. In many cases, specific parts of the hardware can be tested by executing the appropriate subtest. In general, however, the full set of subtests for each diagnostic test should be run. The functional description of each diagnostic and its subtests is given in paragraph 2-2.2 02 - Diagnostic Menu.

The calibration tests perform five basic tasks: (1) complex spectrum analysis on radar data, (2) generation of clutter maps,(3) sun source checks to update Pedestal Calibration Data parameters, (4) receiver/signal processor path and system reflectivity error calibration, and (5) dynamic range/RF test attenuator step calculation.

Manual control and display permits selected operations involving the Pedestal, the Receiver/Signal Processor, the Data Acquisition Unit (DAU), and the Programmable Signal Processor (PSP).

Section 2-1 RDASOT Mode of Operation

The RDA hardware suite can be configured for either a single channel system (non-redundant) or a dual channel system (redundant). In either system, there is only one antenna and one pedestal. Consequently, only one channel at a time can be controlling the pedestal/antenna in a dual channel configuration. Therefore, RDASOT has two modes of operation: full (controlling channel) and limited (non-controlling channel).

2-1.1 Redundant System.

In a redundant system (dual channel configuration), RDASOT operates in either of two modes, full and limited. If the RDA Applications program is operating in certain states or RDASOT is operating in full mode in one channel, then RDASOT can operate only in limited mode in the other channel.

NOTE: that RDASOT does not distinguish between the FAA and NWS configurations.

Following the initialization described in paragraph Section 3-2 RDASOT Command, the mode of operation is determined. In a redundant system the Mode selection Menu (Figure 2-1. Mode Selection Menu) is displayed to allow the operator to select the mode of operation.

```
16:24:14   RDASOTXX:*******************************************************
16:24:14   RDASOTXX:              MODE SELECTION MENU
16:24:14   RDASOTXX:
16:24:14   RDASOTXX:LINE   COMMANDS                DESCRIPTION
16:24:14   RDASOTXX: 00    TERM                  TERMINATE RDASOT
16:24:14   RDASOTXX: 01    FULL                  FULL MODE
16:24:14   RDASOTXX: 02    LIMITED               LIMITED MODE
16:24:14   RDASOTXX:
16:24:14   RDASOTXX:ENTER LINE NUMBER.
```

Figure 2-1. Mode Selection Menu

When the mode has been determined, a message is displayed to indicate that RDASOT is running in a dual channel configuration. This message also provides the mode (full/limited) and the channel number (1/2) in which RDASOT is operating. Refer to Figure 2-2. Redundant System Mode/Channel Message.

Once the mode has been determined, that mode remains in effect for the duration of the maintenance session.

2-1.1.1 Full Mode.

When full mode is selected, an Interprocessor Status Request is sent to the other channel. If the response indicates the state of the other channel is anything but local (standby, off-line operate, or playback), the full mode selection is rejected and the Mode Selection Menu is redisplayed. In this case the operator must select limited mode or change the operating mode of the other RDA and try selecting full mode again or terminate RDASOT.

When full mode is selected, if there is no response to the Interprocessor Status Request, a second request is sent. If there is still no response, then RDASOT assumes control of the antenna and pedestal and attempts to initiate full mode. If it is unsuccessful (because the other channel is already in control or there is a hardware problem), then the full mode selection is rejected and the Mode Selec-

tion Menu is redisplayed. In this case the operator must select limited mode or change the operating mode of the other RDA and try selecting full mode again or terminate RDASOT.

RDASOT requests and receives RDA Interprocessor Status messages during the initialization sequence. It does not respond to any incoming requests. Once a mode of operation has been achieved it remains in effect until RDASOT is terminated. There is one exception to this rule. It is possible that RDASOT can become the non-controlling channel when it is in channel 1 and in full mode. This can occur when the operator at some later point in time initiates either the RDA Applications program or RDASOT in channel 2. Since RDASOT in channel 1 will not respond to any Interprocessor Status requests, the program in channel 2 will assume it is free to take control. Consequently, it is the operator's responsibility to be aware of what is running in both channels and to know which one is currently the controlling channel (full mode).

Note that channel 1 can never become the controlling channel unless channel 2 relinquishes control. Channel 1 is the controlling channel by default when nothing is running in the channel 2 RDA.

```
16:24:28   RDASOTXX:************************************************************
16:24:28   RDASOTXX:*************   Dual Channel Configuration   *************
16:24:28   RDASOTXX:************************************************************
16:24:28   RDASOTXX:*       XXXXXXXXXXXX       *         CHANNEL N            *
16:24:28   RDASOTXX:************************************************************
```

where XXXXXXXXXXXX = LIMITED MODE or FULL MODE
N = 1 or 2

Figure 2-2. Redundant System Mode/Channel Message

2-1.1.2 Limited Mode.
In limited mode, RDASOT excludes those Diagnostic, Calibration, and Manual Control and Display operations which require the use of the antenna or the pedestal. Limited mode may always be selected by the operator in a redundant system when RDASOT is operating in either channel.

2-1.2 Non-Redundant System.
In a non-redundant system (single channel configuration), the RDASOT mode defaults to full mode. Consequently, the Mode Selection Menu is not displayed. Also, the message which provides the configuration, mode, and channel number is not displayed. In this configuration all RDASOT tests/functions are available for execution.

Section 2-2 Main Menu and Selections.

After initialization (including mode selection in the redundant system), the Main Menu is displayed (Appendix A, Figure A-1. Main Menu). Selections made from this menu are described in the following paragraphs.

2-2.1 01 - Record Maintenance Session.

This option enables the operator to record the maintenance session. A menu (Appendix A, Figure A-2. Record Maintenance Session Menu) is displayed giving the choice of logging to the printer, tape, disk, or console. Only one medium other than the console may be selected at a time. Once the selection is made by the operator, the test session is recorded to that medium until either RDASOT is terminated or the operator chooses another means of logging the test session.

The session is automatically logged to disk by default. If the selection is made to log to disk, a file named P06RECOD.LOG is created in account 0 on whatever volume is assigned to the system console. This selection will destroy the data recorded up to the point of making the choice. At the conclusion of a maintenance session, the operator may print the file, copy it to tape, or rename it to save for later use. Note that if the file is to be saved, it must be renamed (using the OS/32 RENAME command), as the next maintenance session will use the same file name.

If logging to the printer, printing will take place at the end of the maintenance session. If the system does not have a printer configured, selection of this option will cause an OS/32 error message to appear on the screen.

If logging to tape, the operator must first insert a tape in the SCSI tape drive. If no tape is present, an OS/32 error message will appear on the screen when this option is selected. The tape will rewind when first inserted, but rewinding will not take place between consecutive maintenance sessions. There is no file name associated with maintenance sessions logged to tape. If desired, the tape may be copied to a disk file using OS/32 COPY, as follows:

```
XAL filename,IN,80/10      (allocate the disk file)
COPY
COPY ST0:,filename         (assuming the SCSI tape drive is ST0:)
END
```

Note that the Redundant System Mode/Channel Message (see Figure 2-2. Redundant System Mode/Channel Message) will be included as part of the maintenance log file although it is displayed at the system console screen prior to the display of the Main Menu and the subsequent selection by the operator for recording the maintenance session. This note is applicable for the redundant configuration only.

2-2.2 02 - Diagnostic Menu.

The Diagnostic tests each examine one particular piece of hardware through various software manipulations. Each Diagnostic test contains one or more subtests which are available for selection by the operator for execution. However, in a redundant system when RDASOT is operating in limited mode, the Pedestal Diagnostic is inhibited from selection by the operator. Individual subtests within a Diagnostic test may also be inhibited from selection when RDASOT is in limited mode.

All subtests which are not inhibited are initially selected as a default and remain so unless the operator utilizes the test control option to change selections as described in paragraph Section 5-1 Selecting Subtests.

To run a Diagnostic test, select <2> from the RDASOT Main Menu to display the appropriate Diagnostic menu depending on the mode of operation (see APPENDIX A, Figure A-3. Diagnostic Menu and Figure A-1. Main Menu). Then select the desired test to display its Test Control menu (see Appendix A, Figure A-5. Typical Test Control Menu as an example) and select <1> from the Test Control menu to begin the test execution. See section Chapter 5 for details of Test Control.

Note that when RDASOT is in limited mode, if <3> is selected from the Diagnostic menu for Pedestal Diagnostics, a message is displayed indicating this selection is inhibited and the Diagnostic menu is redisplayed for entry of another selection.

The following paragraphs describe the Diagnostic tests in detail.

2-2.2.1 DAU Diagnostics.
The Data Acquisition Unit (DAU) Diagnostics are comprised of four subtests: Reset DAU, Request Status, DAU Built-In Test Equipment (BITE) Check, and Receive Data Message. The diagnostics are responsible for isolating failures within the DAU.

a. Subtest 1 - Reset DAU. Subtest 1 is responsible for checking a portion of the RS232 interface and some of the control circuitry of the DAU. The subtest shows that if the DAU command is accepted without an error or timeout, the DAU is capable of receiving commands.

b. Subtest 2 - Request Status. Subtest 2 is responsible for ensuring that information can be transmitted by the DAU and received at the computer end. The subtest does not check the validity of the information, only whether the information is transmitted.

c. Subtest 3 - DAU BITE Check. Subtest 3 is responsible for ensuring that the DAU is capable of transmitting valid BITE data. The test ensures that the discrete serial interface and the analog multiplexer are working properly.

d. Subtest 4 - Receive Data Message. Subtest 4 is responsible for ensuring that the DAU is capable of receiving data messages. Subtest 4 sends to the DAU a data message command to sound the audible alarm on the maintenance panel of the DAU.

2-2.2.2 Tower/Utility Diagnostic.
The Tower/Utility Diagnostic is comprised of a single subtest that is responsible for isolating failures within the environment control system and the site security system.

2-2.2.3 Pedestal Diagnostics.
The Pedestal Diagnostics are responsible for isolating failures within the Pedestal. The diagnostics incorporate sensory information from the DAU and the Pedestal, and use Built-In Tests (BITs) residing in the Pedestal for the isolation of failures.

NOTE:
The Pedestal Diagnostic is inhibited from execution in a redundant system when RDASOT is in limited mode.

a. Subtest 1 - Voltage Check. Subtest 1 assumes the DAU is operating correctly when it requests the DAU BITE data. After acquiring the BITE data, the subtest checks the Pedestal power supply voltages.

b. Subtest 2 - Self-test 1. Subtest 2 performs a data turn-around test between the processor and the Pedestal by using Self-test 1. Subtest 2 issues a self-test request command to the Pedestal and then sends two 16-bit words. The Pedestal resends the words

received, and the subtest ensures that the data is valid. An incorrect data pattern or a timeout indicates a failure in the RS232 interface. The subtest sends 64 different groups.

c. Subtest 3 - Pedestal BIT Check. Subtest 3 performs a status check on the Pedestal BIT data. The subtest initializes the azimuth and elevation rates to zero and sets the BIT status bit. A timeout indicates a problem in the RS232 interface. This subtest then reads in BIT data and verifies its contents.

d. Subtest 4 - Self-test 2. Subtest 4 initiates Self-test 2 which is the Pedestal's built-in diagnostic. While the subtest is waiting for return of the Self-test 2 status code, a message is displayed every three seconds. If the status code is not returned in 30 seconds, an error message is displayed; otherwise, the status code is displayed. If the status code is non-zero, appropriate error messages are also displayed.

2-2.2.4 PSP Diagnostics.
The Programmable Signal Processor (PSP) Diagnostics are responsible for isolating failures within the PSP. This includes the Input Signal Conditioner (ISC), Arithmetic Units (AUs), Arithmetic Control Unit (ACU), Input/Output Controller (IOC), and Serial Maintenance Interface (SMI).

The following subtests can be executed in the PSP Diagnostics:

a. Subtest 1 - I/O Loopback. Verifies basic communications between the PSP and the Radar Data Acquisition Status and Control (RDASC) computer. This test completes in about 1 sec.

b. Subtest 2 - SMI Bus. Verifies the parallel-to-serial and serial-to-parallel converters by comparing the sent and received data patterns. This test completes in about 1 sec.

c. Subtest 3 - Processor Select. Attempts to select each of the processors (i.e., ACU, AUs, ISC, and IOC). The IOC-SMI path is further verified by this subtest. This test completes in about 1 sec.

d. Subtest 4 - ACU Microinstruction. Sends test patterns to the ACU and compares them with the patterns received back from the ACU. This test completes in about 1 sec.

e. Subtest 5 - Source and Destination Busses. Verifies the logic associated with the ACU source and destination busses. This test completes in about 1 sec.

f. Subtest 6 - Control Store Memory. Verifies the ACU microcode control store addressing uniqueness and the ability to write and read every location. This test completes in about 1 1/2 min.

g. Subtest 7 - ACU Sequencer. Verifies the logic controlling execution, including the micro program counter and microinstruction register. Jumps, interrupts, and the breakpoint register will also be verified. This test completes in about 4 sec.

h. Subtest 8 - ACU ALU. Verifies the Arithmetic Logic Unit (ALU) operations: add, subtract, shifts, and status. This test completes in about 1 min.

i. Subtest 9 - ACU Registers. Verifies 29 registers and memory in the ACU and IOC that can be written on the destination bus and read on the source bus. This test completes in about 9 sec.

j. Subtest 10 - Command Banks Selection. Verifies bank one and two separation in performing reads and writes from both the ACU and IOC. This test completes in about 1 sec.

k. Subtest 11 - ACU Command Banks. Verifies the two command banks, addressing uniqueness, and ability to write and read each location. The command banks are written from the IOC and read from the ACU. This test completes in about 2 min.

l. Subtest 12 - ECW RAM. Verifies the addressing uniqueness and ability to write and read each location of the Emulation Control Word (ECW) Random Access Memory (RAM). This test completes in about 7 sec.

m. Subtest 13 - Coefficient Memory. Verifies the 2048 word real and the 2048 word imaginary parts of coefficient memory, both addressing uniqueness and ability to write and read each location. This test completes in about 3 sec.

n. Subtest 14 - ACU Address Generation. Verifies the AU memory address generation logic, including use of the index register and the increment/decrement by one and two. This test completes in about 38 sec.

o. Subtest 15 - AU Microinstruction. Verifies the loading of the AU microinstruction register from the ACU. The AU microinstruction consists of the AU portion of the ACU microinstruction, a coefficient, and a memory address. This test completes in about 3 sec.

p. Subtest 16 - AU Busses. Verifies the busses in each AU, as well as the selection circuitry which gates the data onto the busses, the bit set register, and the status register. This test completes in about 31 sec.

q. Subtest 17 - AU Activate/Deactivate. Verifies the conditional activate and deactivate logic. This test completes in about 2 sec.

r. Subtest 18 - AU Parity Generation. Verifies the parity generation, parity checking, and parity error hold logic. The AU memory test verifies memory parity. This test completes in about 2 sec.

s. Subtest 19 - AU Memory. Verifies both banks of 16384 complex words and parity of input memory, and the 16384 complex words and parity of scratchpad memory associated with each AU. Also verifies addressing uniqueness and the ability to read and write every location. This test completes in about 4 sec.

t. Subtest 20 - AU Register File. Verifies the 16 locations in the register file in each AU. This test completes in about 6 sec.

u. Subtest 21 - AU Multiplier and Accumulator. Verifies the set of multiplier and accumulator functions available for execution for each Arithmetic Unit (AU). This test completes in about 44 sec.

v. Subtest 22 - AU PROMS. Verifies the addressing and contents of the square root, reciprocal, and log Programmable Read-Only Memory (PROMS). This test completes in about 2 min 30 sec.

w. Subtest 23 - Adjacent AU Reads. Verifies that adjacent AUs can read each other's memory. Since there are not four AUs in the system and the AU4 to AU1 wraparound logic

is not used operationally, the wraparound logic is not tested. This test completes in about 3 sec.

x. Subtest 24 - IOC Register. Verifies the three IOC registers, using the diagnostic capabilities of the IOC. This test completes in about 1 sec.

y. Subtest 25 - IOC Output Memory. Verifies the 8192 word output memory and the 4096 word status memory. Both addressing uniqueness and ability to write and read every location are verified. This test completes in about 2 sec.

z. Subtest 26 - Output Memory Functional. Verifies functionality of the output memory write sequencer, which includes memory address generation, AU data selection, first/last sequencing, and output memory bank uniqueness. Tests are performed using diagnostic capability of the IOC only, not ACU and AU. This test completes in about 5 sec.

aa. Subtest 27 - IOC Interface Test. Verifies the AU to IOC and ACU to IOC interface, which includes the 8-bit data output from AUs and address and memory control (MC) microinstruction field from the ACU. This test completes in about 3 sec.

ab. Subtest 28 - Output Memory to RDASC Processor. Verifies the transfer of data from the output memory to the RDASC computer, utilizing the status memory. This test completes in about 18 sec.

ac. Subtest 29 - IOC Destination Decode. Verifies the destination decode uniqueness for the destinations easily verifiable by the IOC. Remaining destinations will be verified by the HSP Diagnostics. This test completes in about 2 sec.

ad. Subtest 30 - ISC Parameters. Verifies the five registers in the ISC. This test completes in about 2 sec.

ae. Subtest 31 - ISC Functional. Verifies the operation of the ISC, which includes verification of the following functional blocks:

(1) timing and control
(2) channel enables
(3) address selection
(4) first/last AU selection
(5) range collapse selection
(6) address generation
(7) sweep counters
(8) input bank selection flip-flop
(9) input and output toggle request
(10) surveillance RAM (tests all locations and addresses for stuck bits)
(11) RAM address counter
(12) range cell counter
(13) parity generator
(14) surveillance RAM tri-state buffers.

Tests are performed using the diagnostic capability of the ISC only, not ISC interfaces. This test completes in about 1 1/2 min.

af. Subtest 32 - ISC Interface. Verifies ISC to ACU, IOC to ISC, and ISC to AU interfaces. The ISU to ACU test checks ACU selection of input and output toggle requests as jump conditions and the ability of the ACU to clear those requests. The IOC to ISC test

checks the IOC ability to write to the ISC parameters (destination 5) and surveillance memory (destination 4). This test checks for stuck data and address lines for each of the two destinations. The ISU to AU test checks the ISC interface to the AU input memories, which includes address, data, parity, and control lines, for all combinations of channel 1 working, channel 2 working, and range collapse. This test completes in about 1 min.

2-2.2.5 HSP Diagnostics.
The Hardwired Signal Processor (HSP) Diagnostics are responsible for isolating failures within the HSP. It assumes that the PSP Diagnostics have successfully executed.

The following subtests can be executed in the HSP Diagnostics:

a. Subtest 1 - End Around. Verifies the interface between the Programmable Signal Processor (PSP) input/output controller (IOC) and the control interface to the HSP.

b. Subtest 2 - Synchronizer. Consists of two separate cases that verify the sequencing PROMs which provide timing signals used throughout the HSP. The 4x4 register files are also verified.

c. Subtest 3 - Log. Verifies the test generation logic on the control interface B card, the logarithm to linear conversion circuitry on the prescaler card, and the pipeline circuitry on the output combiner card.

d. Subtest 4 - I, Q, AGC Compensation. Verifies the logic associated with In-Phase (I), Quadrature (Q), and Automatic Gain Control (AGC) compensation, including pipeline registers, AGC compensation factor RAMs, multiplier/accumulators, and the fixed to floating point PROMs.

e. Subtest 5 - Bypass Map. Verifies the bypass map RAM and the bypass commands decode circuitry.

f. Subtest 6 - Notch Width Map. Verifies the notch width map RAM, the notch width scale factor RAM, the normalization PROM, the coefficient PROM, and their associated circuitry.

g. Subtest 7 - Clutter Filter Impulse Response. Verifies the operation of the two clutter filter cards.

h. Subtest 8 - Interference Tag Counter. Verifies the interference tag counter logic using test circuitry set up by HSP destination 7.

i. Subtest 9 - Receiver Interface Control Words. Verifies the 8-bit wide data bus to the Receiver from the Receiver interface card.

j. Subtest 10 - Analog to Digital. Consists of two cases to verify the analog to digital logic located physically with the Receiver.

k. Subtest 11 - Phase Control RAM. Verifies the logic associated with the 4096 by 8-bit RAM.

2-2.2.6 Receiver Diagnostics.
The Receiver Diagnostics are responsible for isolating failures within the Receiver. These are to be used as first level fault isolation testing. It is assumed that the DAU and PSP interfaces are operat-

ing properly. The voltages at Test Point 1 and 2 on A31 must be adjusted properly according to the T.O. manual. The Receiver Diagnostics test consists of 20 subtests as shown in Table 2-1: Receiver Subtests. The ordering of the subtests is designed to provide optimum isolation of faults within the Receiver.

a. Subtest 1 - Receiver BITE Check. This subtest consists of 15 steps. These steps perform the following tests: Receiver power supplies check using DAU status data, Receiver status check, HSP end around check, and an interface check via serial link between Receiver and control interface. After each step is completed, pertinent information is displayed on the screen indicating test description, expected and received values, and a PASS/FAIL status.

b. Subtest 2-20 - Receiver Checks. The primary purpose of these subtests is to isolate failures within the Receiver. This is accomplished by injecting an appropriate signal into the Receiver and monitoring the signal for designated test points. If the level of the received signal is not within tolerance (±3dBm) of the expected level, the user will be alerted with an appropriate diagnostic error message which indicates the test point in the Receiver where the error occurred. At the completion of each subtest the test point, expected and received values, and a pass/fail message will be displayed. This allows the user to detect any path loss build up through the receiver. For subtests 17 and 18, if there is no interference suppression unit in your configuration, a message will be displayed. Normal processing will continue.

2-2.2.7 Transmitter Diagnostics.
The Transmitter Diagnostics are responsible for isolating failures within the Transmitter. The Transmitter Diagnostics consist of four subtests: DAU Status Check, Pulse Forming Network (PFN) Toggle Check, Wave Guide Check, and Peak Power Measurement, each of which can be selected on an individual basis.

The Transmitter Diagnostics assume that the Data Acquisition Unit (DAU) and the PSP interfaces are operating properly.

a. Subtest 1 - DAU Status Check. This subtest checks the current Klystron Preheat state. If it indicates that the Transmitter is in a cold start, then a diagnostic error message is displayed and no further processing is done. When the Transmitter is not in a cold start situation, the status of the remaining Transmitter related information is checked.

b. Subtest 2 - PFN Toggle Check. This subtest exercises the mechanical PFN switch. Once the current position of the switch has been determined, a toggle command is sent to the PFN to change the pulse (i.e., short to long or long to short). A check is then made to ensure that the PFN switch position has changed.

c. Subtest 3 - Wave Guide Check. This subtest exercises the mechanical wave guide switch. Once the current state of the wave guide switch has been determined, a command is sent to DAU to switch the wave guide position (dummy load to antenna or antenna to dummy load). A check is then made to ensure that the wave guide switch position has changed.

Table 2-1: Receiver Subtests

Subtest 1	BITE Check
Subtest 2	DC offset test (A31)
Subtest 3	COHO RF signal test (A10J3)
Subtest 4	Driver RF signal test (A22J6)
Subtest 5	Klystron RF signal test (DC1)
Subtest 6	CW signal test (A22J7)
Subtest 7	4 position diode switch (A23J3)
Subtest 8	Attenuated RF test (A23J4)
Subtest 9	2 position diode switch (A24J4)
Subtest 10	RF signal at front end of Receiver (A5J5)
Subtest 11	STALO RF test (A5J6)
Subtest 12	Mixer/preamplifier assembly test (A5J7)
Subtest 13	IF matched filter assembly test (A6J4)
Subtest 14	Coaxial delay line (A8J3)
Subtest 15	IF attenuator test (A9J3)
Subtest 16	IF amp/limiter test (A9J4)
Subtest 17	Guardband (+) IF amplifier test (A14J4) (if present)
Subtest 18	Guardband (-) IF amplifier test (A14J5) (if present)
Subtest 19	Log video test (A12J6)
Subtest 20	RF signal through antenna (A5J5)

(Test points in parentheses)

NOTE:
This subtest is inhibited from execution when RDASOT is in limited mode and operating in channel 2.

d. Subtest 4 - Peak Power Measurement. The Klystron output peak power measurement is acquired through the HSP output data which comes from the PSP. It is also calculated from the average power measured by the Transmitter and antenna RF power monitors, which are read by the DAU. This procedure is done in both long and short pulse modes. A data summary table (see Figure 2-4) is displayed to give the operator information on intermediate test results in each mode. Following display of this table, the operator must press <RETURN> to continue. If the Klystron outputs in kilowatts for the antenna and Transmitter readings are not within 10 percent agreement, a diagnostic error message will be displayed.

NOTE:

When RDASOT is operating in limited mode, there is no display of antenna data in the summary table. Instead, the word "INHIBITED" will appear on each line in the antenna column. Also, no error messages will be generated with regard to the 10% tolerance check since no antenna power meter data is available.

2-2.3 03 - Calibration Menu.

The calibration tests perform various calibration functions independently of each other. Each calibration test contains one or more subtests which are available for selection by the operator for execution. However, in a redundant system when RDASOT is operating in limited mode, the Clutter Map function and the Suncheck functions are inhibited from selection by the operator. Certain functions within the complex spectrum test and Receiver/Signal Processor Calibration are also inhibited from selection when RDASOT is in limited mode.

To run a calibration test, select <3> from the RDASOT Main Menu to display the appropriate Calibration menu depending on the mode of operation (Appendix B, Section Figure B-1. Calibration Menu and Section Figure B-2. Limited Mode Calibration Menu). Then select the desired test to begin the test execution. Only Suncheck will display a Test Control Menu. Select <1> from the Test Control menu to begin the test execution. See Chapter 5 for details of Test Control.

Note that when RDASOT is in limited mode, if <1> is selected from the Calibration menu for Clutter Map or <2> is selected for Suncheck measurements, a message is displayed indicating this selection is inhibited and the Calibration menu is redisplayed for entry of another selection.

Because the procedures in the calibration tests are somewhat more involved than for the diagnostic tests, more detailed instructions are provided in the following paragraphs.

Pulsewidth 1			
	Power Meters		RF/IF Test Monitor
	Transmitter	Antenna	
Meter (XMTR Off)	2.1	3.1	4.1
Meter (XMTR On)	2.2	3.2	4.2
Average Power	2.3 mW	3.3 mW	4.3
Duty Cycle	2.4	3.4	4.4
Peak Power	2.5 dBm	3.5 dBm	4.5 dBm
Insertion Loss To Klystron	2.6 dB	3.6 dB	4.6 dB
Peak Power @ KLY	2.7 dBm	3.7 dBm	4.7 dBm
Peak Power @ KLY	2.8 KW	3.8 KW	4.8 KW

(See following sheets for explanation of each numbered block.)

Figure 2-3. Transmitter Subset 4 Display
(Sheet 1 of 4)

1. Pulsewidth type: SHORT or LONG

2. Transmitter RF Power Meter Related Descriptions.

2.1 Meter (XMTR Off): This field contains the digital representation (0...255) of the average power measurement which is monitored at the Transmitter RF Power Meter. It is obtained from the DAU while the transmitter is not radiating. This number reflects a bias measurement which will be factored out when computing the average power monitored at the transmitter RF power meter.

2.2 Meter (XMTR On): This field contains the computed average (0.0...255.0) for a series of average power meter readings (digital representation) monitored at the Transmitter RF Power Meter. These readings are obtained while the transmitter is radiating.

2.3 Average Power: This field contains the computed average power (mW) that is output at the Transmitter Power Meter. It is obtained by subtracting the bias measurement (2.1) from the computed average measurement (2.2) and then converting from digital to analog (mW) using the conversion factors as defined in the Maintenance Console/ RDASC ICD for Transmitter RF Average Power.

2.4 Duty Cycle: This value is the product of PRF and the equal energy pulse width from adaptation data. It will be needed when converting from average power to peak power. It will be different for long and short pulses.

2.5 Peak Power: This field contains the computed Peak Power (dBm) output at the Transmitter Power Meter. This is obtained by converting the Average Power (2.3) to Peak Power.

2.6 Insertion Loss To Klystron: This field contains the path loss (dB) from the Transmitter Power Meter to the Delayed Klystron Output. This value is obtained by summing the appropriate path loss values in Adaptation data.

2.7 Peak Power @ KLY: This field represents the Peak Power (dBm) measurement output from the Klystron. It is obtained by subtracting the Insertion Loss To Klystron (2.6) from the computed Peak Power (2.5) monitored at the Transmitter Power Meter.

2.8 Peak Power @ KLY: This field represents the Peak Power (KW) measurement output

Figure 2-3. Transmitter Subset 4 Display
(Sheet 2 of 4)

3. Antenna RF Power Meter Related Descriptions.

NOTE:
In limited mode, all 3.X fields contain the word "INHIBITED".

3.1 Meter (XMTR Off): This field contains the digital representation (0...255) of the average power measurement which is monitored at the Antenna RF Power Meter. It is obtained from the DAU while the transmitter is not radiating. This number reflects a bias measurement which will be factored out when computing the average power monitored at the transmitter RF power meter.

3.2 Meter (XMTR On): This field contains the computed average (0.0...255.0) for a series of average power meter readings (digital representation) monitored at the Antenna RF Power Meter. These readings are obtained while the transmitter is radiating.

3.3 Average Power: This field contains the computed average power (mW) that is output at the Antenna Power Meter. It is obtained by subtracting the bias measurement (3.1) from the computed average measurement (3.2) and then converting from digital to analog (mW) using the conversion factors as defined in the Maintenance Console/RDASC ICD for Antenna RF Average Power.

3.4 Duty Cycle: This value is the product of PRF and the equal energy pulse width from adaptation data. It will be needed when converting from average power to peak power. It will be different for long and short pulses.

3.5 Peak Power: This field contains the computed Peak Power (dBm) output at the Antenna Power Meter. This is obtained by converting the Average Power (3.3) to Peak Power.

3.6 Insertion Loss To Klystron: This field contains the path loss (dB) from the Antenna Power Meter to the Delayed Klystron Output. This value is obtained by summing the appropriate path loss values in Adaptation data.

3.7 Peak Power @ KLY: This field represents the Peak Power (dBm) measurement output from the Klystron. It is obtained by subtracting the Insertion Loss To Klystron (3.6) from the computed Peak Power (3.5) monitored at the Antenna Power Meter.

3.8 Peak Power @ KLY: This field represents the Peak Power (KW) measurement output from the Klystron. It is obtained by converting the Peak Power (3.7) from dBm to KW.

Figure 2-3. Transmitter Subset 4 Display
(Sheet 3 of 4)

4. RF/IF Test Monitor Related Descriptions.

4.1 Meter (XMTR Off): Not applicable.

4.2 Meter (XMTR On): This field contains a digital representation (0.0...255.0) of the signal level monitored at test point DC1 in the transmitter. It is actually a computed average based on a series of samples taken while the transmitter was radiating.

4.3 Average Power: Not applicable.

4.4 Duty Cycle: Not applicable.

4.5 Peak Power: This field contains the computed Peak Power (dBm) value monitored at test point DC1. The meter value (4.2) is converted from digital to analog using the log amp detector values in adaptation data.

4.6 Insertion Loss To Klystron: This value contains the path loss (dB) from the RF/IF Test Monitor to the Delayed Klystron Output. This value is obtained by summing the appropriate path loss values in Adaptation data.

4.7 Peak Power @ KLY: This value represents the Peak Power (dBm) measurement output from the Klystron. It is obtained by subtracting the Insertion Loss To Klystron (4.6) from the computed Peak Power (4.5) monitored at test point DC1.

4.8 Peak Power @ KLY: This value represents the Peak Power (KW) measurement output from the Klystron. It is obtained by converting the Peak Power (4.7) from dBm to KW.

Figure 2-3. Transmitter Subset 4 Display
(Sheet 4 of 4)

2-2.3.1 Generate Clutter Map.
This function is responsible for generating a site-dependent Clutter Filter Bypass Bit Map. The generated clutter map is used by the operational program (CPCI 01) for PSP Destination 13, Clutter Suppression. Initially, this procedure is run by the operator at the time the radar site is first established. Thereafter, the clutter map generation is run periodically as required. The modifiable parameters required for clutter map generation are set prior to or at installation time. The operator is not required to change these parameters during subsequent map generations. An explanation of each modifiable parameter is provided hereafter to assist the user in understanding the clutter map generation process.

The clutter map is divided into two portions, a low elevation map and a high elevation map. Each portion of the map contains information for 256 azimuth sectors. An azimuth sector scans 1.4^{o}. 256 azimuth sectors constitute a complete azimuth scan. For each azimuth sector, 512 bits of information are retained in the map. Each bit corresponds to a kilometer range bin of data received from the PSP. This bit is either set or cleared depending on the return signals.

The Clutter Filter Bypass Bit Map is created by sending destinations to the PSP. Data collection and processing are performed for the specified azimuth and elevation positions. There can be from 1 to 12 elevation scans. The elevation angles range from -1^{o} to $+45^{o}$, and all angles must be in

ascending order. There can be 1 to 4 low elevation angles with a range of -1^{o} to $+5^{o}$, and 1 to 8 high elevation angles with a range of $+1.5^{o}$ to $+30^{o}$. Low and high elevations are differentiated through a transition value also specified in Adaptation Data. If more than one low elevation angle is processed, the resultant radials are logically "ANDed" together into the low elevation portion of the map to form the final clutter map. The same holds true for the high elevation angles.

Three azimuth positions are "ANDed" together to form one azimuth sector. Azimuth positions start at 359.3 , increment by 0.7 , and make a complete 360 turn (e.g., 359.3 , 0.0 , 0.7 , 1.4 , ..., 357.3 , 357.9 , 358.6). Once an azimuth scan is completed, the elevation is incremented to the next angle indicated in the elevation table.

For each azimuth and elevation position, two radials of echo surveillance data are retrieved: one with clutter filtering enabled and the other with clutter filtering bypassed. The data is run through an algorithm to determine which bits in the 32-word bit map are to be cleared. A cleared bit indicates clutter requiring filtering of the data, whereas a set bit indicates no filtering required.

At completion of this test, the formed map is transferred at the operator's discretion to the RDABY-PAS.DAT file. The approximate running time for this function is seven hours, assuming all 12 elevations are being processed.
This test assumes that all the diagnostics have been run and the system is operating properly. This test also assumes that the operational program (CPCI 01) has run and valid Calibration Data is available. There is only one subtest.

NOTE:

Clutter Map Generation is inhibited from execution in a redundant system when RDASOT is in limited mode.

2-2.3.1.1 Subtest 1 - Generate Maps.
To execute subtest 1, the following steps must be taken:

a. Select <3> from the Main Menu to display the Calibration menu (Appendix B, Figure B-1).

b. Select <1> from the Calibration menu. A message is then displayed asking if the RDA Operational Program has been put in STBY state before terminating the Operational Program.

c. If the RDA Operational Program was not put in the STBY state, enter <N>. An instructional message is displayed, and by depressing any key, the operator returns to the Calibration menu. Follow the displayed instructions

d. If the RDA Operational Program was put in STBY before terminating the Operational Program , enter <Y>, and the Clutter Map Control menu is displayed (Appendix B, Section Figure B-3. Clutter Map Control Menu). In the Clutter Map Control menu, the following options exist:

(1) Select <0> to return to the CALIBRATION menu.

(2) Select <1> to display/select parameters. The Parameter Selection menu is displayed (Appendix B, Section Figure B-4. Clutter Map Parameter Selection Menu). Initially the program is set with default values. The operator has the option of performing the following:

(a) Select <0> to indicate that parameter selection is complete. The Clutter Map Control menu is redisplayed.

(b) Select <1> to change the Destination 8 notchwidth value. The default value is specified in Adaptation Data. Valid entries are from 0.5 to 3.9375 meters/second in increments of 0.0625. The notchwidth value is later inserted into the Destination 8 table to be sent to the PSP. The notchwidth should be selected to reject most of the clutter and reject only the least amount of weather or clear air signals. Use the default value unless otherwise instructed.

(c) Select <2> to change the THRESHOLD1 value. The default value is specified in Adaptation Data. Entries should be in the range of 0 to 50 dB. THRESHOLD1 is compared against the difference between the bypassed data and the noise factor at each kilometer to help determine whether a bit should be cleared in the bit map table. When THRESHOLD1 is exceeded, it implies the presence of clutter or weather signal. Use the default value unless otherwise instructed.

(d) Select <3> to change the THRESHOLD2 value. The default value is specified in Adaptation Data. Entries should be in the range of 0 to 50 dB. THRESHOLD2 is compared against the difference between the bypassed data and the filtered data at each kilometer to help determine whether a bit should be cleared in the bit map table. When THRESHOLD2 is exceeded, it implies the presence of clutter as opposed to weather or a clear air signal. Use the default value unless otherwise instructed.

(e) Select <4> to display the Elevation Angles menu (Appendix B, Section Figure B-5. Clutter Map Elevation Angles Menu). Default elevation angles are specified in Adaptation Data. At the discretion of the operator any or all of these elevation values may be changed. There may be at most 4 low values and 8 high values. Low values must be in the range of -1.0 to 5.0 . High values must be in the range of 1.5 to +45.0 . The angles must be in ascending order. The transition value can also be altered. It must be between the highest low range value and the lowest high range value.

NOTE:

If a negative elevation angle is specified, it is possible to get a "PED CONTROL TASK HAS NOT COMPLETED THE CURRENT FUNCTION WITHIN THE SPECIFIED TIMEOUT INTERVAL" error meassage. This is especially possible for angles close to -1. There are two procedures which should solve this problem. One, take the necessary action to be sure the elevation boresight correction is less than .1 degree (encoder alignment, Suncheck). Two, physically adjust the lower elevation pre-limit switch in accordance with EHB 6-510, paragraph 6-6.18.3.

The elevation angles are normally selected to include the elevation angles used in the operational Volume Coverage Patterns (VCPs). Ideally, each elevation angle used in the operational VCPs would be included. However, it has been found that, where elevation angles are closely grouped, omission of one or more of the elevations does not appreciably affect the resultant map. The more elevation angles processed, the greater the time required for map generation. Use the default value unless otherwise instructed.

To make a change in the elevation angles, select <1>...<12>, depending on

which elevation angle is to be altered; e.g., if elevation angle 3 is to be updated, select <3> and enter the updated elevation angle. If 99.0 is entered, data collection and processing terminates when this angle is reached during processing. All the previous angles are processed, while the subsequent elevation angles are not. To change the transition value, select <13> and enter the updated transition value.

(3) Select <2> from the Clutter Map Control menu to process the clutter maps. This performs the processing of the azimuth elevation angles to create the clutter map.

2-2.3.2 Suncheck Measurements.
The suncheck measurements consist of two subtests: Align Pedestal and Gain/Loss Check. The sun is used as a target to perform these functions, with the requirement that the sun's elevation be between 8 and 50 .

NOTE:
It is critical in these subtests that the input of Greenwich Mean Time (see paragraphs 2-2.3.2.1.1 Subtest 1 Inputs.and 2-2.3.2.2.1 Subtest 2 Inputs.) be accurate in order to determine the sun's position with the required precision. To obtain correct time, call WWV at (303) 499-7111.

NOTE:
The Suncheck Measurement function is inhibited from execution in a redundant system when RDASOT is in limited mode.

2-2.3.2.1 Subtest 1 - Align Pedestal.
Subtest 1 aligns the Pedestal by pointing the antenna at the computed location of the sun. A left to right scan and an up to down scan are performed over the sun. The difference between the computed and the actual locations of the sun is then calculated and stored in global correction factors for elevation and azimuth. If any errors occur during the scanning or data collection processing, an error message is displayed indicating the problem.

During the course of the alignment calibration, the DC bias offset values are also calibrated, and an estimate of the radar beamwidth is computed. These results, along with the Pedestal alignment correction factors, are displayed to the operator at the end of subtest 1 execution.

To select subtest 1 for execution, first select <3> from the RDASOT Main Menu to display the Calibration menu (Appendix B, Section Figure B-1. Calibration Menu). From the Calibration menu, select <2> to display the Suncheck Test Control menu. Use this menu (see paragraphs Section 5-1 Selecting Subtests and Section 5-3 Subtest Execution) to select and initiate subtest 1.

2-2.3.2.1.1 Subtest 1 Inputs.
During execution of subtest 1, the following operator input is required when requested:

a. Current Greenwich Mean Time (GMT) accurate to the second, in the form HHMMSS. For example, if the GMT is 18:15:30, the operator should enter 181530.

NOTE:
The operator is given the option to bypass the GMT input by entering 0 when prompted for the GMT. In this case, SUNCHECK will use the current time as maintained in the operating system, which is assumed to be accurate GMT.

b. 'Y' or 'N' responses to prompts which ask the operator if Pedestal alignment correction

factors in the Calibration Data file should be rewritten with the newly computed correction factors.

2-2.3.2.1.2 Subtest 1 Outputs.

Subtest 1 performs an azimuth scan from 3^o to the left of the sun horizontally across to 3^o to the right of the sun, and also an elevation scan from 3^o below the sun vertically upward to 3^o above the sun. For each scan, the following results are displayed: old and new alignment correction factors in degrees, the peak power that was measured during the scan, the parabola to which the measured scan data was fitted, and a goodness of fit indicator for the generated parabola. The parabola is displayed as three real values which correspond to the equation $y = ax^2 + bx + c$. The quadratic coefficient is a, the linear coefficient is b, and the constant term is c. The goodness of fit indicator is a value between 0 and 1 which indicates how well the measured data conforms to the displayed parabolic function. A goodness of fit value of 1.0 indicates a perfect fit. If the computed sun alignment correction is greater than 0.3333^o ,for either azimuth or elevation, a warning message is issued to the operator. An angular correction value this large indicates that something is wrong and should not be ignored. However, if it is ignored and the correction value is greater than 0.5^o a second warning message is issued to the operator. **Failure to heed these instructions will possibly result in your radar becoming non-operational.**

Also displayed to the operator are the newly calibrated DC I and Q bias offsets, the measured mean Receiver noise level (noise power) with the antenna pointing three degrees from the sun, and the computed radar beamwidth estimate in degrees.

If the operator selects that the Calibration Data file be updated with the new alignment correction factors, an acknowledgement message will be displayed. See Appendix B, Figure B-6. Suncheck Subtest 1 Sample Output for Subtest 1 sample output.

2-2.3.2.2 Subtest 2 - Gain/Loss Check.

This test checks the Antenna Gain/Radome Loss by computing the predicted sun noise temperature and the dB ratio between it and the actual measured sun noise temperature. Subtest 1 must be executed prior to this test to ensure that the azimuth and elevation correction factors are correct and that the DC I and Q biases have been calibrated. Subtest 2 computes the position of the sun and points the antenna to that location. The sun noise temperature is measured and the dB ratio between the measured sun noise temperature and the computed prediction of the sun noise temperature is displayed to the operator. If any errors occur during data collection and processing, an error message is displayed indicating the problem.

To select subtest 2 for execution, first select <3> from the RDASOT Main Menu to display the Calibration menu (Appendix B, Section Figure B-1. Calibration Menu). From the Calibration menu, select <2> to display the Suncheck Test Control menu. Use this menu (see paragraphs Section 5-1 Selecting Subtests and Section 5-3 Subtest Execution) to select and initiate subtest 2.

2-2.3.2.2.1 Subtest 2 Inputs.

During execution of subtest 2, the following operator input is required when requested:

a. If Subtest 2 is executed before Subtest 1 has executed, a warning message will be issued to the user. The user must answer as to whether to continue with Subtest 2 or to end Subtest 2.

b. Current Greenwich Mean Time (GMT) accurate to the second, in the form HHMMSS. For example, if the GMT is 18:15:30, the operator should enter 181530.

NOTE:

The operator is given the option to bypass the GMT input by entering 0 when prompted for the GMT. In this case, SUNCHECK will use the current time as maintained in the operating system, which is assumed to be accurate GMT.

c. Frequency and Solar Flux Data. The operator must first call the solar observatory [(303) 497-3171] for frequency - solar flux data pairs. If one pair exists whose frequency is very close to the NEXRAD Transmitter frequency, enter number of pairs = 1, enter the frequency in megahertz, and enter its corresponding solar flux as an integer value.

However, if a single, suitable pair is not available, then select 2 pairs: one whose frequency is below the NEXRAD Transmitter frequency and one whose frequency is above it. Enter number of pairs = 2; enter the lower frequency in megahertz and its corresponding solar flux as an integer; and enter the higher frequency in megahertz and its corresponding solar flux as an integer.

A response of <TERM> to any entry will end the sequence and return to the Test Control menu.

2-2.3.2.2.2 Subtest 2 Outputs.
Subtest 2 displays its computation of the actual measured sun noise temperature, the expected sun noise temperature, and the dB ratio between the two.

2-2.3.3 Complex Spectrum Measurements.
Complex Spectrum Measurements consist of one subtest which has two processing sections: Pedestal Positioning and Complex Spectrum Analysis. The subtest allows the operator to acquire output based on a known signal. The output may then be analyzed and compared to expected results.

NOTE:

Before RDASOT is started for Complex Spectrum, the RDA must be brought up, moved into standby mode, moved into operational mode, and brought down. See RDASC User's Guide for more information. This is done to insure that current Calibration Data is available.

To access Complex Spectrum, select <3> from the RDASOT Main Menu to display the Calibration menu. Then select <3> to display the Complex Spectrum Process Menu.

NOTE:

The Position Pedestal function is inhibited from execution in a redundant system when RDA-SOT is in limited mode.

2-2.3.3.1 Pedestal Positioning.
This section allows the operator to input and display the Pedestal position in the case that radar data is to be used instead of signal generator data. The initial position is the park position as specified in Adaptation Data.

Select <1> from the Complex Spectrum Process menu to display the Pedestal Manual Control menu (Appendix B, Section Figure B-9. Complex Spectrum Pedestal Manual Control Menu). From there, select <1> to display the azimuth input prompt, <2> to display the elevation input prompt, or <3> to display the current position. The current position will be displayed after a valid azimuth or elevation value is entered.

NOTE:

If a negative elevation angle is specified, it is possible to get a "PED CONTROL TASK HAS NOT COMPLETED THE CURRENT FUNCTION WITHIN THE SPECIFIED TIMEOUT INTERVAL" error meassage. This is especially possible for angles close to -1. There are two procedures which should solve this problem. One, take the necessary action to be sure the ele-

vation boresight correction is less than .1 degree (encoder alignment, Suncheck). Two, physically adjust the lower elevation pre-limit switch in accordance with EHB 6-510, paragraph 6-6.18.3.

2-2.3.3.2 Complex Spectrum Analysis.
This section allows the operator to input parameters to control the collection and processing of data, collect the transmission data, and display results.

Select <2> from the Complex Spectrum Process menu to display the Parameter Selection menu (Appendix B, Section Figure B-10. Complex Spectrum Parameter Selection Menu). Enter the appropriate selection from the Parameter Selection menu and provide the input requested. Selections are:

<1> Target type: DKLY, CW, RF, radar data

NOTE:
Radar data is inhibited from selection as the target type in a redundant system when RDA-SOT is in limited mode. See Appendix B, "Figure B-11. Complex Spectrum Target Type Menu" on page 8 and "Figure B-12. Limited Mode Complex Spectrum Target Type Menu" on page 8 for the Target Type menu displayed in full and limited modes respectively. If radar data is selected in limited mode, a message is displayed indicating this selection is inhibited and the Parameter Selection Menu is redisplayed with no change to the target type.

<2> Injection point: antenna, Receiver (N/A when target type is radar data)

<3> Signal injection level: range of values from Adaptation Data, dependent on target type (N/A when target type is radar data)

<4> Pulse width: short, long

<5> Pulse repetition interval: PRI1 to PRI8

<6> Range: 0.25 to maximum of 470.75 kilometers in increments of 0.25, upper limit dependent on delta PRF (Adaptation Data) and selected PRI (N/A when target type is DKLY)

<7> Linear clock phase: 0 to 15

<8> Log clock phase: 0 to 31

<9> Number of FFT points: 32, 64, 128, 256, 512, 1024

<10> Notch width: 0.5 to 3.9375 meters/second in increments of 0.0625

<11> Window function: VON HANN, HAMMING, BLACKMAN, EXACT BLACKMAN, none

Select <3> from the Complex Spectrum Process menu after the parameters have been set to start the collection of transmission data.

Select <4> from the Complex Spectrum Process menu after data has been collected to display the Bin Selection menu (Appendix B, Section Figure B-13. Complex Spectrum Bin Selection Menu). Select the bin number of the data desired to initiate the processing of data for output and display the Product Display menu (Appendix B, Section Figure B-14. Complex Spectrum Product Display Menu), which gives the various options for display.

2-2.3.4 Receiver/Signal Processor Calibration Aid Programs.
This section supports specific NWS EHB 6-510 procedures which calibrate Receiver/Signal Processor signal path and reduce system reflectivity error. The technician performs various measurements, then executes functions to input these measurements. The function performs the required calculations and displays the results to the technician for further action. Receiver/Signal Processor Calibration contains six functions.

To access the Receiver/Signal Processor Calibration Routines, select <3> from the RDASOT Main Menu to display the Calibration menu. Then select <4> to display the RSP Calibration Selection menu. Use this menu to initiate the appropriate calibration routine (Appendix B, Section Figure B-15. Receiver/Signal Processor Selection Menu).

2-2.3.4.1 Power Monitor Consistency Check.
Select <5> to initiate this routine which corresponds to EHB 6-510 paragraph 6-6.28.1.3. The RDASC Microwave Loss measured during normal system operation is a required input to this routine. The output is the error between the two system power monitors.

2-2.3.4.2 Reflectivity Error Estimate for Short Pulse.
Select <1> to initiate this routine which corresponds to EHB 6-510 paragraph 6-6.28.1.4.2. Data from four separate VCPs must be collected during normal system operation. This data is then entered into this routine. The opportunity to correct any data entered is provided before calculations are initiated. The results are displayed so the operator can take any required action specified by the procedure.

2-2.3.4.3 Reflectivity Error Estimate for Long Pulse.
Select <2> to initiate this routine which corresponds to EHB 6-510 paragraph 6-6.28.2.1.4. Data from three separate VCPs must be collected during normal system operation. This data is then entered into this routine. The opportunity to correct any data entered is provided before calculations are initiated. The results are displayed so the operator can take any required action specified by the procedure.

2-2.3.4.4 Minimum Discernible Signal Check.
Select <3> to initiate this routine which corresponds to EHB 6-510 paragraph 6-6.28.2.2. During Standby system operation an external signal is injected. Measurements are taken and data from the system is collected. These values are entered into this routine and the resulting Minimum Discernible Signal is displayed for further action specified by the procedure.

2-2.3.4.5 CW Test Path Calibration.
Select <4> to initiate this routine which corresponds to EHB 6-510 paragraph 6-6.28.3.1. If the system is a redundant site, this routine is inhibited when in Limited Mode because it requires access to the pedestal(Appendix B, Section Figure B-16. Limited Mode Receiver/Signal Processor Selection Menu). When selected, the CW Test Path Calibration menu is displayed(Appendix B, Section Figure B-17. CW Test Path Calibration Control Menu). Selections are:

<0> Returns to the RSP Calibration Selection Menu.

<1> This will turn off any test signal. There is no signal present when the routine is first entered.

<2> This injects the normal CW test signal at the front end with receiver protector in normal position.

<3> This allows the measurements made during the procedure to be input. The new path losses resulting from the measurements are displayed.

<4> This is a toggle switch between 8dB and 0dB test attenuation. Ther procedure requires

one or the other depending upon where the signal is measured. The attenuation is in effect only after the signal is injected.

2-2.3.4.6 CW Substitution Reflectivity Accuracy Verification.
Select <6> to initiate this routine which corresponds to EHB 6-510 paragraph 6-6.28.2.4. This is a two part procedure using an external signal source to calculate system reflectivity. One part uses only data available at the RDA. The other part uses additional data which must be collected at the PUP. The routine is structured to run at the RDA whether the PUP data is available or not. If the PUP data is available, both the RDA Reflectivity Error and the PUP Reflectivity Error is displayed. If the PUP data is not available, a message is displayed stating that it is not available.

2-2.3.5 Dynamic Range/RF Test Attenuator Step Calculation.
This section provides two calculation functions, the Dynamic Range calculation which indicates the ability of the receiver channel to process linear signals and the 103 step RF Test Attenuator calculation. The Analog/Digital Calculation and Automatic Gain Control Calculation functions are provided as support routines for the previous two calculations. They can also run as stand alone calculations.

2-2.3.5.1 Analog/Digital Bias Calculation.
Select <1> to initiate this calculation as a stand alone routine. This routine automatically runs when any of the other selections are made. It is used to zero out DC offsets in the receiver. It executes in a loop until the offsets (IBIAS and QBIAS) are minimized.

2-2.3.5.2 Automatic Gain Control Calculations.
Select <2> to initiate this calculation as a stand alone routine. This routine automatically runs when either the Dynamic Range or RF Attenuation Step calculation are selected. It calibrates the IF attenuator. This routine checks the true attenuation and phase shift of all 39 IF attenuator steps and creates an AGC table to calibrate the Hardwired Signal Processor for the Dynamic Range calculation or the RF Test Attenuator Step calculation.

2-2.3.5.3 Dynamic Range Calculation.
Select <3> to perform this calculation. The dynamic range indicates the capability of the receiver to process signals above the Minimum Discernible Signal (MDS). Follow appropriate procedures to interpret these values and what course of action is required.

2-2.3.5.4 RF Test Attenuator Step Calculation.
Select <4> to perform this calculation. This function calculates new values for the 103 steps of the RF attenuation found in adaptation data. You may look at the new values and compare them to the old values. Follow the appropriate procedures to determine if an update should be made. The adaptation data file used is specified by the state file controlled by RDASC program.

2-2.4 04 - Manual Control and Display Menu.

The Manual Control and Display functions allow the operator manual control of certain equipment and display of selected data. These functions are not specifically diagnostic in nature, but are for use by experienced operators in maintaining the RDA equipment. The Manual Control and Display menu is shown in Appendix C, Figures C-1 and C-2. Selection of <1>, <2>, or <3> from this menu will cause the appropriate Control menu to be displayed. Selection of <4> from the Manual Control and Display menu will immediately initiate a PSP download without any additional menus (see 2-2.4.4 Download PSP.). Selection of <0> from the Manual Control and Display menu will stop the synchronizer if it is running (see paragraph 2-2.4.2 Control Receiver/Signal Processor.).

NOTE:

The Control Pedestal function is inhibited from execution in a redundant system when RDASOT is in limited mode.

2-2.4.1 Control Pedestal.
This function provides for manual control of the Pedestal and display of its position. To use this function, select <4> from the RDASOT Main Menu to display the Manual Control and Display menu. Then select <1> to begin execution. There are two levels of menus involved, shown in Appendix C, Figure C-3. Control Pedestal Function Selection Menu and Figure C-4. Pedestal Manual Control Menu. From the first level, the operator may select to manually control the Pedestal in azimuth and elevation (see paragraph 2-2.4.1.3 Pedestal Manual Control.), park the Pedestal, or display its position.

2-2.4.1.1 Park Pedestal.
Selecting the Park Pedestal function will position the Pedestal to the azimuth and elevation park positions defined in Adaptation Data, using Pedestal angle corrections from Calibration Data. If the Pedestal is in the high or low elevation stops, it will be driven out of the stops to the park position. The park position and an acknowledgement will be displayed.

2-2.4.1.2 Display Position.
Selection of Display Position at this menu level will display the current azimuth and elevation positions of the Pedestal when the Pedestal servo power is off. Pedestal angle corrections from Calibration Data are not applied to the positions displayed by this function.

2-2.4.1.3 Pedestal Manual Control.
This function permits manual operation of the Pedestal (see Appendix C, Figure C-4. Pedestal Manual Control Menu). When this function is selected, the pedestal servo power is turned on via a Pedestal Operate command sent to the DAU. When the function is terminated by the operator, a Pedestal position command will be issued to the Pedestal in both axes at the current Pedestal position and pedestal servo power will be turned off via a Pedestal Operate reset command sent to the DAU.

a. If Command Azimuth Rate is selected, rates from -36.0 /sec to +36.0 /sec can be entered.

b. If Command Azimuth Position is selected, positions from 0.0 to 359.9 can be entered. Selection of this function terminates the Azimuth Rate function if it was previously selected. The azimuth angle correction from Calibration Data is applied.

c If Command Elevation Rate is selected, rates from -5.0 /sec to +5.0 /sec can be entered. The rate will automatically reverse direction when the Pedestal approaches the upper or lower limits.

d. If Command Elevation Position is selected, positions from -1.0 to +60.0 can be entered. Selection of this function terminates the Elevation Rate function if it was previously selected. The elevation angle correction from Calibration Data is applied.

NOTE:
If a negative elevation angle is specified, it is possible to get a "PED CONTROL TASK HAS NOT COMPLETED THE CURRENT FUNCTION WITHIN THE SPECIFIED TIMEOUT INTERVAL" error message. This is especially possible for angles close to -1. There are two procedures which should solve this problem. One, take the necessary action to be sure the elevation boresight correction is less than .1 degree (encoder alignment, Suncheck). Two, physically adjust the lower elevation pre-limit switch in accordance with EHB 6-510, paragraph 6-6.18.3.

e. Selection of Display Rate and Position will display the current azimuth and elevation rates and positions of the Pedestal. Pedestal angle corrections from Calibration Data are applied to the positions displayed by this function. The operator has the option of refreshing the rate and position data on this screen by repeatedly depressing the

<RETURN> key. Depressing any key (other than the space bar) before <RETURN> will return the operator to the Pedestal Manual Control menu.

2-2.4.1.4 Record Data.
This is a toggle selection which enables or disables the recording of pedestal information to a disk file named PEDSOT.DAT. Some of the information recorded is not relevant to field use. The information is recorded at 45 ms intervals. The useful information provided to the technician is the time in cumulative milliseconds, the delta time between pedestal activity, azimuth position, elevation position, azimuth rate and elevation rate. Maintenance procedures explain how to use this information.

There are two ways to look at this information. One, is to use the BACKUP utility to save the file PEDSOT.DAT to SCSI tape, then print it off on a system which has a printer (i.e., RPG). The second way is to use the viewing capability described in paragraph 2-2.4.1.5 Look at Recorded Pedestal Data..

The file PEDSOT.DAT is deleted and reallocated each time Record data is selected. To save this file after you have terminated RDASOT use the RENAME function:

RENAME PEDSOT.DAT,fn

where fn is a file name of your choosing.

2-2.4.1.5 Look at Recorded Pedestal Data.
Selection of this function allows the technician to view the contents of the file PEDSOT.DAT at the MMI. The size of PEDSOT.DAT can be very large. This capability views the data by looking at 19 records at a time. The file is indexed by record number. This means you may choose any available record number and view 19 records from that record. Data recording must be turned off before you can access the data.

Data recording must be turned off before you can access the data.

Illustrative Example - Figure C-14. Use of Pedestal Control Function details the steps to set up a Pedestal Azimuth rate of 22.22 degrees per seconds. Figure C-15. PEDSOT.DAT coresponding to Figure C-14 is the Pedestal data which results from commanding an Azimuth rate of 22.22 degrees per second. Note from Figure C-15. PEDSOT.DAT coresponding to Figure C-14 that the Azimuth and Elevation positions are recorded every 45 milliseconds. An Azimuth rate of 22.22 degrees per second will result in a steady state change of 1 degree per 45 milliseconds or 1 degree per display. If this is not the case, there is a malfunction in the loop. The most probable cause is dirty slip rings or bad Azimuth encoder.

Note from Figure C-14. Use of Pedestal Control Function that the time of insertion of the Azimuth rate is 13:54:16. Note also that in Figure C-15 that the time at which the Azimuth position begins to change is indicated as 50042516. This is milliseconds after midnight. If 50042516 is divided by 1000, we obtain 50042.516 seconds. If we further divide this by 3600 seconds/hour, we obtain 13.9 hours which is equivalent to the indicated time of 13:54:16. It is thus seen that the two times are equivalent.

A suggested rate for checking the Elevation servo is 2.22 degrees per second. This slower rate should produce an Elevation position change of one degree every ten displays. Note that it is normal when the Elevation position reaches a limit (5 degrees low limit, +55 degrees upper limit) for the direction of the Elevation change to reverse.

2-2.4.2 Control Receiver/Signal Processor.
This function provides control of the HSP destination 7 parameters in order to generate radar test sig-

nals, and allows the operator to monitor the Receiver built-in test points. In addition, it calculates the Radio Spectrum Eligibility Criteria (RSEC) 40 db and 80 db bandwidths and Transmitter peak power to aid in tuning the Klystron. To use this function, select <4> from the RDASOT Main Menu to display the Manual Control and Display menu. Then select <1> to begin execution.

Execution of this function first displays the appropriate Source Selection menu (Appendix C, Figure C-5. Source Selection Menu or Figure C-6. Limited Mode Source Selection Menu). Selection of <1>, ALL SOURCES OFF, will clear the Receiver of any existing test signal. The other source selections have source control menus associated with them (Appendix C, Figure C-7. Source Control Menus).

NOTE:

Radar source is inhibited from selection in a redundant system when RDASOT is in limited mode. In this case, if <2> for radar source is selected by the operator, a message is displayed indicating that this selection is inhibited in limited mode and the Source Selection menu is redisplayed.

A summary of the operator options available for each source is shown in Table 2-2: Options in Control Receiver/Signal Processor.

Menus for options which require additional selection are shown as follows:

Option	Appendix C, Figure
Pedestal Control	C-7
Compute Radio Spectrum Eligibility Criteria (RSEC) limits	C-9
Change Receiver Interface Output Select (RIOS) parameters	C-10
Change test A/D bandwidth	C-11

Options which prompt the operator for additional input are:

Change RF test attenuation
Change HSP end around test pattern
Change range

Table 2-2: Options in Control Receiver/Signal Processor

OPTIONS	SOURCE					
	Radar	Klystron Drive	Klystron Output	CW	RF Noise	Delayed RF/CW
Inject Signal	*	*	*	*	*	*
Change pulsewidth	*	*	*			*
Change pulse repetition frequency	*	*	*			*
Toggle XMTR waveguide switch	*					
Compute RSEC limits	*		*			
Control Ant/Ped	*					
Toggle RCVR injection point		*	*	*	*	*
Change RIOS parameters	*	*	*	*	*	*
Change RF test attenuation		*	*	*	*	*
Change HSP end around test pattern		*	*	*	*	*
Toggle Receiver protect		*	*	*	*	*
Toggle interference suppression		*	*	*	*	*
Change test A/D bandwidth		*	*	*	*	*
Change range		*				*
Toggle AGC test select				*		*

The options below have only two states as shown, and are identified by the word TOGGLE in the command field. The current state of each is displayed on the source control menu line. Selection of one of these options will cause it to change state.

Transmitter wave guide switch position (ANTENNA/DUMMYLOAD)
Receiver injection point (CABINET/FRONT END)
Receiver protect on (NORMAL/FORCED ON)
Interference suppression (ENABLED/DISABLED)
AGC test select (ENABLED/DISABLED)

A change through a menu selection does not immediately change the characteristics of the signal. This is accomplished by selecting INJECT SIGNAL from the same source control menu. Once the signal has been injected into the Receiver, it remains there until the operator makes a menu selection **other than** the following:

- RETURN TO SOURCE SELECTION MENU
  (from any of the source control menus except Radar Source and Klystron Output Source)

- COMPUTE RSEC LIMITS
  (from the RADAR or KLYSTRON OUTPUT source control menu)

The capability to exit Control Receiver/Signal Processor with the synchronizer running can be accomplished by the following menu selection sequence:

<1> INJECT SIGNAL (from any SOURCE CONTROL MENU)
<0> RETURN TO SOURCE SELECTION MENU
<0> RETURN TO MANUAL CONTROL AND DISPLAY MENU
<Y> in response to query about exiting with synchronizer running

The RADAR source has three unique features. First, there is the capability of radiating. This happens when the operator selects INJECT SIGNAL while the Transmitter wave guide switch is in the antenna position. Since there is a possibility of Pedestal motion during this function, there is a radiation time limit of 25 seconds. When INJECT SIGNAL is selected and the wave guide switch is in the antenna position, the operator will be given a prompt to ask if he wants to override the 25-second time limit. A response of 'Y' (yes) will cause the high voltage to be turned off after five minutes; otherwise it will be turned off after 25 seconds. The second feature is that a selection of COMPUTE RSEC LIMITS following INJECT SIGNAL will not halt the synchronizer. This will allow the technician to make measurements and provide them as inputs during the compute RSEC limits processing. This second feature is also applicable to use of the Klystron Output Source. Current T.O. procedures do not specify the use of COMPUTE RSEC LIMITS. However, the capability has been left in RDASOT. The third feature is the ability to control the antenna position and also inject a signal. You can change the antenna azimuth position, elevation position, azimuth rate, elevation rate , or any combination of the two that is required. Then inject a signal through the menu selection. However, there are upper and lower limits in effect when elevation rate commands are given which will automatically change the direction of the antenna. For safety reasons the pedestal is placed in park positions before exiting RADAR source.

The RIOS related parameters allow the operator to set up for Receiver control data repeat back testing, Receiver status, and RF/IF test signal monitoring from the RIOS selection menu. RF/IF test signal monitoring provides the mechanism for selecting the desired test signal by choosing the RF or IF multi-position switch. For each desired area under test, the operator may select either the actual test jack output or an associated value computed back to an input or output of a module. The values computed at the module input/outputs are derived by adding or subtracting associated adaptation data path losses to the actual value measured at the test jack output by the RF/IF test monitor. This provides the operator a quick method of tracking path losses in the receiver and is a valuable tool for tracking changes after a historical baseline is established with a known good system. However, the values reflected by the RIOS functionality are only as good as the stability of the test paths and associated couplers and should never be used to actually determine path losses. If a problem is suspected, actual path losses should be determined using external test equipment. The Receiver block diagram in the Technical Manual will be helpful in determining the locations of the test points in the Receiver.

Upon selection of exit from the Control Receiver/Signal Processor function, if the synchronizer is up and running, the operator will be asked if he wants to exit with it running. A response of 'Y' (yes) will keep the synchronizer running with the current test signal as long as the operator remains in the Manual Control and Display functions. Otherwise, the Receiver will be cleared of the current test signal.

2-2.4.3 DAU BITE Display.
This function will display the discrete and analog data monitored from Built-In Test Equipment (BITE) by the DAU (see Maintenance Console/RDASC Processor ICD, 1208279). To use this function, select <4> from the RDASOT Main Menu to display the Manual Control and Display menu. Then select <1> to begin execution and display the first screen of data. The display includes a description of each bit/byte, as well as "function equals" values in the case of discrete data.

The operator has the option of selecting additional screens of data to display or of refreshing the data on the current screen. A status request is issued to the DAU prior to the display of each screen, so the most current data are always displayed. Typical displays are shown in Appendix C, Figure C-12. Typical DAU BITE Display (Discrete) and Figure C-13. Typical DAU BITE Display (Analog).

2-2.4.4 Download PSP.
This function permits the operator to download the PSP microcode data to the Programmable Signal Processor from the PSP EEPROMS and initiate download of coefficient memory and AU tables from the RDASC processor. To use this function, select <4> from the RDASOT Main Menu to display the Manual Control and Display menu, and then select <4> to begin execution.

Chapter 3
RUNNING RDASOT

There are various operator inputs required by RDASOT during execution. To understand what type of input is required, the operator must understand what types of prompts to expect, what commands are entered to perform various tasks, and what responses are required during execution.

Section 3-1 Identification of Input Requests

There are two types of input requests the operator should expect on the system console. If RDASOT is not initialized and executing, the Concurrent operating system will display an '*' to prompt the operator for input. If RDASOT is executing, the operator can expect an input request for the current function to be of the form "function >", where "function" can be one of the following:

RDASOTXX	for	RDASOT Controller
DAUXDIAG	for	DAU Diagnostic
UTILDIAG	for	Tower/Utilities Diagnostic
PEDLDIAG	for	Pedestal Diagnostic
PSPXDIAG	for	PSP Diagnostic
HSPDIAG	for	HSP Diagnostic
RECVDIAG	for	Receiver Diagnostic
XMITDIAG	for	Transmitter Diagnostic
CLUTRMAP	for	Clutter Map Calibration
SUNCHECK	for	Sun Check Calibration
SPECTRUM	for	Complex Spectrum Calibration
RCSIGCAL	for	Receiver/Signal Processor Calibration
DYNRFATN	for	Dynamic Range/RF Attenuator Step Calculation
PEDMCD	for	Pedestal Control
RAUDSP	for	DAU BITE Display
TESTSIG	for	Control Receiver/Signal Processor

The operator input is then echoed back on the screen in the following form:

hh:mm:ss function:nn

where hh:mm:ss= current system time (hours:minutes:seconds)
function = task name for function, as above
nn = operator input

Section 3-2 RDASOT Command

The RDASOT command is used to begin execution of the RDASOT program. Refer to initialization procedures in NWS EHB 6-510, Section 4-7.6.1. The operator must first be sure that he is on a system console and that no other program is running. Enter <RDASOT> followed by a carriage return after the system prompt. The word 'RDASOT' should scroll up on the screen followed by the loading sequence (Figure 3-4. RDASOT Loading Sequence Display). Once RDASOT is loaded and initialized, the Main Menu (Appendix A, Figure A-1. Main Menu) will appear on the screen.

NOTE:

If RDASOT is operating in a redundant system, the RDASOT mode of operation (full/limited) is determined (via the Mode Selection Menu) prior to the display of the Main Menu. Refer to paragraph Figure 2-1. Mode Selection Menu for a discussion of the mode selection. Otherwise, in a non-redundant system, the mode defaults to full mode and the operator is unaware of the existence of the mode of operation.

```
*     RRRRRRR      DDDDDDD       AAAAAA       SSSSSS       OOOOOO      TTTTTTTT
*     RRRRRRRR     DDDDDDDD     AAAAAAAA     SSSSSSSS     OOOOOOOO     TTTTTTTT
*     RR     RR    DD     DD    AA     AA    SS     SS    OO     OO       TT
*     RR     RR    DD     DD    AA     AA    SS           OO     OO       TT
*     RRRRRRRR     DD     DD    AAAAAAAA     SSSSSSS     OO     OO       TT
*     RRRRRRR      DD     DD    AAAAAAAA      SSSSSSS    OO     OO       TT
*     RR     RR    DD     DD    AA     AA          SS    OO     OO       TT
*     RR     RR    DD     DD    AA     AA    SS     SS    OO     OO       TT
*     RR     RR    DD     DD    AA     AA    SSSSSSSS     OOOOOOOO       TT
*     RR     RR    DDDDDDD      AA     AA     SSSSSS       OOOOOO        TT

BEGIN RDASOT LOAD SEQUENCE

SET INTERNAL READ BUFFERS

IRBUF- 10 BUFFER(S) PRESENT
IRBUF-  0 BUFFER(S) IN USE

BEGIN LOAD OF RDASOT FUNCTIONS

LOADING XMITDIAG
LOADING UTILDIAG
LOADING DAUXDIAG
LOADING PEDLDIAG
LOADING RECVDIAG
LOADING PSPXDIAG
LOADING HWSPDIAG
LOADING CLUTRMAP
LOADING SUNCHECK
LOADING SPECTRUM
LOADING RCSIGCAL
LOADING DYNRFATN
LOADING PEDMCD
LOADING DAUDSP
LOADING TESTSIG
LOADING PEDLCTRL
LOADING DAUXCTRL
LOADING TIMETRAP
LOADING RDASOTXX

END LOAD OF RDASOT FUNCTIONS

13:58:55   RDASOTXX:BEGIN RDASOT EXECUTION/INITIALIZATION
13:58:55   RDASOTXX:TIME 13:58:55   20 MARCH     1997
IREAD>RDASOTXX: XAL P06RECOD.LOG,IN,80;
IREAD>RDASOTXX: SE LO P06RECOD.LOG,COPY;
13:58:56   RDASOTXX:TIME 13:58:56   11 MARCH     1997
13:58:56   RDASOTXX:*****************************************************
13:58:57   RDASOTXX:*  ADAPTATION  FILE    :     ADAPTCUR.DAT/9           *
13:58:57   RDASOTXX:*  CALIBRATION FILE    :     RDACALIB.DAT/0           *
13:58:57   RDASOTXX:*  LONG TERM CALIB FILE:     LONGTERM.DAT/0           *
13:58:57   RDASOTXX:*****************************************************
13:58:57   RDASOTXX:*       RDA ADAPTATION DATA FILE IDENTIFICATION       *
13:58:57   RDASOTXX:*****************************************************
13:58:57   RDASOTXX:*  TYPE   :    CURRENT *  INTERNAL NAME: ADAPTCUR.DAT *
13:58:57   RDASOTXX:*  FORMAT :       B10.0 *  REVISION     :         M002 *
13:58:57   RDASOTXX:*  DATE   :   03/07/97 *  TIME         :     19:39:09 *
13:58:58   RDASOTXX:*****************************************************
```

Figure 3-4. RDASOT Loading Sequence Display

Section 3-3 Menu Line Selection

All menus have a similar format. Once a menu is displayed, a line appears on the screen prompting operator response followed by an RDASOT task prompt. After that prompt, enter the number corresponding to a line of the menu, followed by a carriage return. (Leading zeroes do not need to be entered.) Once this entry is made, whatever menu selection was chosen will be executed. Refer to Section APPENDIX A for examples.

Section 3-4 Error Message Paging

Each error message has a similar format (Chapter 4, Figure 4-1. Typical Diagnostic Error Message). At the top of each error message the words 'DIAGNOSTIC FAILURE # OF #' appear.

The "#" informs the operator of the number of error messages that occurred during a particular test. At the bottom, the following prompt appears:

xxxxxxxx:ENTER O OR TERM TO EXIT OR ERROR# TO DISPLAY

where xxxxxxxx is the RDASOT function as described in 3.1.

To view the rest of the error messages, enter a number, not to exceed the number of errors that occurred, after the RDASOT input prompt. That error message will appear on the screen. Another number may then be entered to view other error messages. The numbers entered need not be in sequence and any number may be entered as many times as desired. See Chapter 4 for additional error message information.

To continue execution, enter either <O> or <TERM>.

Section 3-5 RDASOT Operator Inputs

RDASOT is capable of handling operator inputs for integer, floating point, and character values, when they are requested by a prompt. Integer inputs are those numbers which do not have a fractional part (e.g., -1, 12, 235). Floating point inputs are those numbers which may have a fractional part (e.g., 4.5, -28.4, 7.0); the decimal point may be omitted if there is no fractional part. The floating point input may also be in the E-format (e.g., 6.5E7, -.06E-2). Any input is considered to be a valid character value.

Section 3-6 Normal Termination

To terminate the execution of RDASOT, enter <0> followed by a carriage return repeatedly until the RDASOT Main Menu appears on the screen. Again enter <0> followed by a carriage return corresponding to the 'TERMINATE RDASOT' entry on the menu. RDASOT will then stop and remove the RDASOT software from memory. The main program will display a termination message followed by an elapsed time message before the tasks are removed (Figure 3-5. RDASOT Termination Sequence Display).

Section 3-7 Term Command

The TERM command is used to terminate the current function in progress. The terminate sequence to be used will depend on the prompt currently displayed at the system console, as shown in Table 3 - 3: Use of TERM Command.

Section 3-8 KILLSOT Command

This command is used for unusual situations in which RDASOT software must be removed from memory by operator intervention. If, for example, an error occurred during initial loading of the software, leaving some of the RDASOT tasks in memory, KILLSOT should be used to remove them before attempting to start again.

KILLSOT may also be used to accomplish the abnormal termination of RDASOT. This is done by depressing the <BREAK> key and then entering KILLSOT <RETURN> in response to the OS operator prompt. This will abort the function in progress and then remove RDASOT software from memory (see Table 3 - 4: Abnormal Termination Use of KILLSOT). The LOG will automatically be terminated.

```
13:57:43  RDASOTXX:*****************************************************
13:57:43  RDASOTXX:                       MAIN MENU
13:57:43  RDASOTXX:
13:57:43  RDASOTXX:LINE     COMMANDS          DESCRIPTION
13:57:43  RDASOTXX: 00      RETURN        TERMINATE RDASOT
13:57:44  RDASOTXX: 01      RMSESN        RECORD MAINTENANCE SESSION
13:57:44  RDASOTXX: 02      DGMENU        DIAGNOSTIC MENU
13:57:44  RDASOTXX: 03      CLMENU        CALIBRATION MENU
13:57:44  RDASOTXX: 04      CDMENU        MANUAL CONTROL AND DISPLAY MENU
13:57:44  RDASOTXX:
13:57:44  RDASOTXX:ENTER LINE NUMBER.
13:57:46  RDASOTXX:0
13:57:48  RDASOTXX:TIME 13:57:48   11 MARCH     1997
13:57:48  RDASOTXX:ELAPSED TIME    00:07:37
13:57:48  RDASOTXX:RDA SYSTEM OPERABILITY TEST HAS TERMINATED
IREAD>RDASOTXX: SE LO;
```

Figure 3-5. RDASOT Termination Sequence Display

Table 3 - 3: Use of TERM Command

Prompt	Origin	Operator Action at System Console
*	OS	Enter: TERM <RETURN> The Test Control menu of the function that is being terminated is then displayed, followed by the RDASOT prompt waiting for operator response. Note: The use of TERM is not applicable when the function in progress is the RDASOT controller, RDASOTXX
>	RDASOT	Depress <BREAK> key The OS prompt "*" is displayed on the screen
*	OS	Enter: TERM <RETURN> The RDASOT program prompt ">" may be redisplayed. Repeat <RETURN> until the Test Control menu of the function that is being terminated is displayed

Table 3 - 4: Abnormal Termination Use of KILLSOT

Prompt	Origin	Operator Action at System Console
>	RDASOT	Depress <BRE AK> key The OS prompt "*" is displayed.
*	OS	Enter: KILLSOT <RETURN> The RDASOT program prompt ">" may be redisplayed. Repeat <RETURN> until the RDASOT prompt is longer displayed. The RDASOT tasks are removed from memory and the contents of memory is displayed.

Chapter 4
ERROR MESSAGES

Section 4-1 Error Message Format

Common error formats are displayed for both diagnostic and unexpected errors. The title indicates which type of error was found. The second line indicates which error of all errors is being displayed, and the source of the data on which the error is based. The third line indicates the specific test, sub-test, and step when the error was detected. The rest of the description gives a brief summary of the error and what maintenance action should be taken to rectify the situation. The description often includes expected and received test values. Refer to Figure 4-1. Typical Diagnostic Error Message for an example.

Section 4-2 Error Categories

The criterion used for categorizing errors either as diagnostic or unexpected is as follows. An error is labeled "DIAGNOSTIC" whenever the error was detected within the hardware under test. An error is labeled "UNEXPECTED" whenever the error occurred in a hardware unit that was assumed operational; that is, it was not under test but was needed to collect data on the unit under test. For example, one of the Receiver Diagnostic subtests requires the high voltage to be turned on during running of the test. If a DAU error occurred while attempting to turn the high voltage on, this error would be considered unexpected. The purpose of the test was to check a specified Receiver component. Turning on the high voltage was only a means to that end, and a DAU error would prevent the diagnostic from completing the test.

When errors are detected during the execution of a subtest, additional information is provided to alert the operator to the number of errors detected in each category. The following will be displayed prior to the first error message:

dd DIAGNOSTIC ERROR(S) WERE FOUND
uu UNEXPECTED ERROR(S) WERE FOUND

dd = number of diagnostic errors
uu = number of unexpected errors

Unexpected errors will follow diagnostic errors in ascending order. For example, if three diagnostic errors and one unexpected error were detected, the error counts would be displayed as follows:

3 DIAGNOSTIC ERROR(S) WERE FOUND
1 UNEXPECTED ERROR(S) WERE FOUND

The first error displayed would be a diagnostic error and the "DIAGNOSTIC FAILURE" would read "1 OF 4". Error messages 2 and 3 would also be diagnostic and the fourth would be the unexpected error.

```
07:45:45  RECVDIAG:BEGIN SUBTEST 9-2 POSITION DIODE SWITCH
07:45:46  RECVDIAG:SUBTEST 9 TERMINATED DUE TO ERROR
07:45:46  RECVDIAG:1  DIAGNOSTIC ERROR(S) WERE FOUND
07:45:46  RECVDIAG:0  UNEXPECTED ERROR(S) WERE FOUND
07:45:46  RECVDIAG:*****************************************************
07:45:46  RECVDIAG:                  DIAGNOSTICS ERROR
07:45:46  RECVDIAG:DIAGNOSTIC FAILURE 1 OF 1  SOURCE - RCVR DATA
07:45:46  RECVDIAG:TEST - RECVDIAG   SUBTEST - 9    STEP - 1
07:45:46  RECVDIAG:                   DESCRIPTION
07:45:47  RECVDIAG:FAILURE AT TEST POINT A24J4
07:45:47  RECVDIAG:WITH TEST RF SIGNAL
07:45:47  RECVDIAG:THROUGH A29 LOG AMPLIFIER
07:45:47  RECVDIAG:EXPECTED =  -7.52   DBM
07:45:47  RECVDIAG:RECEIVED = -31.33   DBM
07:45:47  RECVDIAG:                   MAINTENANCE ACTION
07:45:47  RECVDIAG:REFER TO APPROPRIATE FAULT ISOLATION PROCEDURE IN THE
07:45:47  RECVDIAG:TECHNICAL MANUAL
07:45:47  RECVDIAG:ENTER O OR TERM TO EXIT OR ERROR# TO DISPLAY
07:45:49  RECVDIAG:0
07:45:49  RECVDIAG:END    SUBTEST  9 - 2 POSITION DIODE SWITCH
```

Figure 4-1. Typical Diagnostic Error Message

Chapter 5
TEST CONTROL

A Test Control menu is displayed upon selection of a diagnostic test and Suncheck calibration test. See Appendix A, Figure A-5. Typical Test Control Menu, for a typical example. (The only variation among the Test Control menus is the menu title and the name of the menu to which return is made.) This menu allows control of error handling and test sequencing. The various functions are described below. For those tests which have only one function there is no Test Control required.

Section 5-1 Selecting Subtests

The operator has the option of selecting all, none, or individual subtests. In general, however, the full set of subtests should be run. All are initially selected by default. In a redundant system, however, if RDASOT is operating in limited mode, subtests which are inhibited from execution can be neither selected nor deselected. They are identified as having "INHIBITD" selection status and will not be executed.

To select all subtests, select <3> from the Test Control Menu. Any subtest that has not been selected will now take on the "SELECTED" status except those having "INHIBITD" status.

To deselect all subtests, select <4> rom the Test Control Menu. Any subtest that has been selected will now take on the deselected status.

The operator also has the option of selecting which subtest should be executed on an individual basis. To select an individual subtest, select <5> from the Test Control Menu to display the individual Subtest Selection Menu (Appendix A, Figure A-6. Typical Substest Selection Menu and Figure A-7 Typical Limited Mode Subtest Selection Menu are examples). Once the individual subtest menu is displayed, the operator can select subtests, deselect subtests, or observe the selected status of any subtests. The subtest selection is based on a toggle system by which the subtest can be selected and deselected by repeatedly entering its menu line number. After each operator entry, the subtest menu will be redisplayed with the current status of each subtest. Note that the subtest selection status of "INHIBITD" is not modifiable. This status will appear in the subtest selection menu only in a redundant system when RDASOT is operating in the limited mode.

If there are more than 10 subtests, an intermediate menu (Appendix A, Figure A-8. Multiple Screen Subtest Selection Menu) will intervene when <5> is selected from the Test Control menu. The operator may select the range of subtests to be displayed and then proceed as above (Appendix A, Figure A-9. Subtest Selection Menu). Note that selection of a subtest is always by menu line number and not the subtest number.

Section 5-2 Test Options

Selection of <2> from the Test Control menu will cause the Main Option menu to be displayed (Appendix A, Figure A-10. Main Option Menu). The current option settings are shown in parentheses after each selection. Option settings are individual for each Test Control menu and are retained throughout the maintenance session.

NOTE:

The loop control selection default value is 1 and can only be changed when using the Diagnostic Menu. The loop control selection cannot be modified when using the Calibration or Manual Control menus.

5-2.1 **Error Control Options**.
Selection of <1> from the Main Options menu will cause the Error Control Option menu to be displayed (Appendix A, "Figure A-11. Error Control Option Menu" on page 7).

5-2.1.1 Loop on Error.
The loop on error option stops the execution of the subtest that incurs the error and executes that same subtest again from the beginning. It causes the same subtest to repeat after 0 or TERM is entered until either that subtest successfully completes or the operator forces a termination, see Table 3 - 3: Use of TERM Command. Should a successful completion of that subtest occur, testing continues with the next selected subtest as under normal conditions.

5-2.1.2 Continue on Error.
The continue on error option stops the execution of the subtest that incurred the error and proceeds to the next executable subtest after 0 or TERM is entered. The next executable subtest is the one that will be executed under normal conditions due to either: the loop counter being greater than or equal to one; or the subtest having a selected status. If there are no executable subtests, the Test Control menu is displayed.

5-2.1.3 Stop on Error.
The stop on error option stops the execution of all subsequent subtests and causes the Test Control menu for that test to be displayed after 0 or TERM is entered. This is the default error control option.

5-2.2 **Error Display Options**.
Selection of <2> from the Main Options menu will cause the Error Message Option menu to be displayed (Appendix A, Figure A-12. Error Message Option Menu). This gives the operator the option of displaying or not displaying diagnostic error messages. The default value is ON (display error messages). Note that an operator response is required for any error message which is displayed (refer to paragraph Section 3-4 Error Message Paging). If an unexpected error occurs, the error message is displayed regardless of the error message display option.

5-2.3 **Loop Control Selection**.
Selection of <3> from the Main Options menu will cause the current value of the loop counter to be displayed and a new value to be requested. This gives the operator the ability to repeatedly execute a subtest or group of subtests within a test. A loop count of 1 or 0 makes one pass through the selected subtests. A loop count of 2 through 9998 makes the specified number of passes through the selected subtests. A loop count of 9999 is considered infinite and will run until the operator stops the execution of the test by use of the TERM command as described in paragraph Section 3-7 Term Command

Section 5-3 Subtest Execution

To begin subtest execution, select <1> from the Test Control menu. Subtests which have a selected status will then be executed in the order in which they appear on the Subtest Selection menu.

APPENDIX A

DIAGNOSTIC MENUS

Typical menus from the diagnostic routines are shown in Figures A-1 through A-12.

NOTE:
If a menu has a limited mode version, both versions (full mode and limited mode) are presented on the same page in this appendix.

```
07:53:21    RDASOTXX:*****************************************************
07:53:21    RDASOTXX:                      MAIN MENU
07:53:22    RDASOTXX:
07:53:22    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
07:53:22    RDASOTXX:   00    RETURN      TERMINATE RDASOT
07:53:22    RDASOTXX:   01    RMSESN      RECORD MAINTENANCE SESSION
07:53:22    RDASOTXX:   02    DGMENU      DIAGNOSTIC MENU
07:53:22    RDASOTXX:   03    CLMENU      CALIBRATION MENU
07:53:22    RDASOTXX:   04    CDMENU      MANUAL CONTROL AND DISPLAY MENU
07:53:22    RDASOTXX:
07:53:22    RDASOTXX:ENTER LINE NUMBER.
```

Figure A-1. Main Menu

```
07:53:32    RDASOTXX:*****************************************************
07:53:32    RDASOTXX:           RECORD MAINTENANCE SESSION MENU
07:53:32    RDASOTXX:
07:53:32    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
07:53:32    RDASOTXX:   00    RETURN      RETURN TO MAIN MENU
07:53:32    RDASOTXX:   01    LOGDSK      LOG TO DISK
07:53:32    RDASOTXX:   02    LOGTAP      LOG TO TAPE
07:53:33    RDASOTXX:   03    LOGPRN      LOG TO PRINTER
07:53:33    RDASOTXX:   04    LOGCON      LOG TO CONSOLE ONLY
07:53:33    RDASOTXX:
07:53:33    RDASOTXX:ENTER LINE NUMBER.
```

Figure A-2. Record Maintenance Session Menu

```
16:38:04    RDASOTXX:*****************************************************
16:38:04    RDASOTXX:            DIAGNOSTIC  MENU
16:38:04    RDASOTXX:
16:38:04    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
16:38:04    RDASOTXX:   00    RETURN      RETURN TO MAIN MENU
16:38:04    RDASOTXX:   01    DAUDIA      DAU DIAGNOSTICS
16:38:04    RDASOTXX:   02    UTLDIA      UTILITY DIAGNOSTICS
16:38:04    RDASOTXX:   03    PEDDIA      PEDESTAL DIAGNOSTICS
16:38:04    RDASOTXX:   04    PSPDIA      PSP DIAGNOSTICS
16:38:04    RDASOTXX:   05    HSPDIA      HSP DIAGNOSTICS
16:38:04    RDASOTXX:   06    RCVDIA      RECEIVER DIAGNOSTICS
16:38:04    RDASOTXX:   07    XMTDIA      TRANSMITTER DIAGNOSTICS
16:38:05    RDASOTXX:
16:38:05    RDASOTXX:ENTER LINE NUMBER.
```

Figure A-3. Diagnostic Menu

```
16:24:55    RDASOTXX:*****************************************************
16:24:55    RDASOTXX:            DIAGNOSTIC  MENU
16:24:55    RDASOTXX:
16:24:55    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
16:24:55    RDASOTXX:   00    RETURN      RETURN TO MAIN MENU
16:24:55    RDASOTXX:   01    DAUDIA      DAU DIAGNOSTICS
16:24:55    RDASOTXX:   02    UTLDIA      UTILITY DIAGNOSTICS
16:24:55    RDASOTXX:   03    PEDDIA      PEDESTAL DIAGNOSTICS  (INHIBITED)
16:24:55    RDASOTXX:   04    PSPDIA      PSP DIAGNOSTICS
16:24:56    RDASOTXX:   05    HSPDIA      HSP DIAGNOSTICS
16:24:56    RDASOTXX:   06    RCVDIA      RECEIVER DIAGNOSTICS
16:24:56    RDASOTXX:   07    XMTDIA      TRANSMITTER DIAGNOSTICS
16:24:56    RDASOTXX:
16:38:56    RDASOTXX:ENTER LINE NUMBER.
```

Figure A-4. Limited Mode Diagnostic Menu

```
16:25:01    XMITDIAG:*****************************************************
16:25:01    XMITDIAG:         XMITDIAG TEST CONTROL MENU
16:25:01    XMITDIAG:
16:25:01    XMITDIAG:   LINE  COMMANDS            DESCRIPTION
16:25:01    XMITDIAG:   00    RETURN      RETURN TO DIAGNOSTIC MENU
16:25:01    XMITDIAG:   01    BEGIN       BEGIN SUBTEST EXECUTION
16:25:02    XMITDIAG:   02    OPTIONS     DISPLAY/MODIFY OPTIONS
16:25:02    XMITDIAG:   03    SELALL      SELECT ALL SUBTESTS
16:25:02    XMITDIAG:   04    SELNONE     DESELECT ALL SUBTESTS
16:25:02    XMITDIAG:   05    SELEACH     SELECT INDIVIDUAL SUBTESTS
16:25:02    XMITDIAG:
16:25:02    XMITDIAG:ENTER LINE NUMBER.
```

Figure A-5. Typical Test Control Menu

```
16:38:14    XMITDIAG:*****************************************************
16:38:14    XMITDIAG:          XMITDIAG SUBTEST SELECTION MENU
16:38:14    XMITDIAG:
16:38:14    XMITDIAG:   LINE  COMMANDS            DESCRIPTION
16:38:15    XMITDIAG:   00    COMPLETE    SUBTEST SELECTION COMPLETE
16:38:15    XMITDIAG:   01    SELECTED    SUBTEST1 - DAU STATUS CHECK
16:38:15    XMITDIAG:   02    SELECTED    SUBTEST2 - PFN TOGGLE CHECK
16:38:15    XMITDIAG:   03    SELECTED    SUBTEST3 - WAVE GUIDE CHECK
16:38:15    XMITDIAG:   04    SELECTED    SUBTEST4 - PEAK POWER MEASUREMENT
16:38:15    XMITDIAG:
16:38:15    XMITDIAG:ENTER LINE NUMBER.
```

Figure A-6. Typical Substest Selection Menu

```
16:25:05    XMITDIAG:*****************************************************
16:25:05    XMITDIAG:          XMITDIAG SUBTEST SELECTION MENU
16:25:05    XMITDIAG:
16:25:05    XMITDIAG:   LINE  COMMANDS            DESCRIPTION
16:25:06    XMITDIAG:   00    COMPLETE    SUBTEST SELECTION COMPLETE
16:25:06    XMITDIAG:   01    SELECTED    SUBTEST1 - DAU STATUS CHECK
16:25:06    XMITDIAG:   02    SELECTED    SUBTEST2 - PFN TOGGLE CHECK
16:25:06    XMITDIAG:   03    INHIBITD    SUBTEST3 - WAVE GUIDE CHECK
16:25:06    XMITDIAG:   04    SELECTED    SUBTEST4 - PEAK POWER MEASUREMENT
16:25:06    XMITDIAG:
16:25:06    XMITDIAG:ENTER LINE NUMBER.
```

Figure A-7 Typical Limited Mode Subtest Selection Menu

```
07:54:33    RECVDIAG:*****************************************************
07:54:33    RECVDIAG:     MULTIPLE SCREEN SUBTEST SELECTION MENU
07:54:33    RECVDIAG:
07:54:33    RECVDIAG:   LINE  COMMANDS            DESCRIPTION
07:54:33    RECVDIAG:   00    RETURN      SUBTEST SELECTION COMPLETE
07:54:33    RECVDIAG:   01                SUBTESTS   1  THRU  10
07:54:33    RECVDIAG:   02                SUBTESTS  11  THRU  20
07:54:33    RECVDIAG:
07:54:33    RECVDIAG:ENTER LINE NUMBER.
```

Figure A-8. Multiple Screen Subtest Selection Menu

```
07:54:39    RECVDIAG:*****************************************************
07:54:39    RECVDIAG:   RECEIVER DIAGNOSTICS SUBTEST SELECTION MENU
07:54:39    RECVDIAG:
07:54:39    RECVDIAG:   LINE  COMMANDS            DESCRIPTION
07:54:39    RECVDIAG:   00    RETURN      RETURN TO SUBTEST MENU
07:54:39    RECVDIAG:   01    SELECTED    SUBTEST  1 - RECEIVER BITE CHECK
07:54:39    RECVDIAG:   02    SELECTED    SUBTEST  2 - DC OFFSET TEST
07:54:39    RECVDIAG:   03    SELECTED    SUBTEST  3 - COHO RF SIGNAL
07:54:39    RECVDIAG:   04    SELECTED    SUBTEST  4 - DRIVER RF SIGNAL
07:54:39    RECVDIAG:   05    SELECTED    SUBTEST  5 - KLYSTRON RF SIGNAL
07:54:39    RECVDIAG:   06    SELECTED    SUBTEST  6 - CW SIGNAL
07:54:40    RECVDIAG:   07    SELECTED    SUBTEST  7 - 4 POSITION DIODE SWITCH
07:54:40    RECVDIAG:   08    SELECTED    SUBTEST  8 - ATTENUATED RF
07:54:40    RECVDIAG:   09    SELECTED    SUBTEST  9 - 2 POSITION DIODE SWITCH
07:54:40    RECVDIAG:   10    SELECTED    SUBTEST 10 - RF MONITOR
07:54:40    RECVDIAG:
07:54:40    RECVDIAG:ENTER LINE NUMBER.
```

Figure A-9. Subtest Selection Menu
(Sheet 1 of 2)

```
07:54:44    RECVDIAG:*****************************************************
07:54:45    RECVDIAG:   RECEIVER DIAGNOSTICS SUBTEST SELECTION MENU
07:54:45    RECVDIAG:
07:54:45    RECVDIAG:   LINE  COMMANDS            DESCRIPTION
07:54:45    RECVDIAG:   00    RETURN      RETURN TO SUBTEST MENU
07:54:45    RECVDIAG:   01    SELECTED    SUBTEST 11 - STALO RF TEST
07:54:45    RECVDIAG:   02    SELECTED    SUBTEST 12 - MIXER PREAMPLIFIER
07:54:45    RECVDIAG:   03    SELECTED    SUBTEST 13 - IF MATCHED FILTER CHECK
07:54:45    RECVDIAG:   04    SELECTED    SUBTEST 14 - COAXIAL DELAY LINE
07:54:45    RECVDIAG:   05    SELECTED    SUBTEST 15 - IF ATTENUATOR
07:54:45    RECVDIAG:   06    SELECTED    SUBTEST 16 - IF AMP/LIMITER
07:54:46    RECVDIAG:   07    SELECTED    SUBTEST 17 - GUARDBAND(+) IF AMP
07:54:46    RECVDIAG:   08    SELECTED    SUBTEST 18 - GUARDBAND(-) IF AMP
07:54:46    RECVDIAG:   09    SELECTED    SUBTEST 19 - LOG TEST VIDEO
07:54:46    RECVDIAG:   10    SELECTED    SUBTEST 20 - RF MONITOR THRU ANTENNA
07:54:46    RECVDIAG:
07:54:46    RECVDIAG:ENTER LINE NUMBER.
```

Figure A-9. Subtest Selection Menu
(Sheet 2 of 2)

```
07:54:56    RECVDIAG:*****************************************************
07:54:56    RECVDIAG:        MAIN OPTION MENU
07:54:57    RECVDIAG:
07:54:57    RECVDIAG:   LINE  COMMANDS            DESCRIPTION
07:54:57    RECVDIAG:   00    RETURN      RETURN TO TEST CONTROL MENU
07:54:57    RECVDIAG:   01    ERRCNTRL    ERROR CONTROL OPTIONS  (STOP )
07:54:57    RECVDIAG:   02    ERRDSPLY    ERROR DISPLAY OPTIONS  ( ON  )
07:54:57    RECVDIAG:   03    LOOPCOUNT   LOOP CONTROL SELECTION (1    )
07:54:57    RECVDIAG:
07:54:57    RECVDIAG:ENTER LINE NUMBER.
```

Figure A-10. Main Option Menu

```
07:55:02    RECVDIAG:*****************************************************
07:55:02    RECVDIAG:     ERROR CONTROL OPTION MENU
07:55:02    RECVDIAG:
07:55:02    RECVDIAG:   LINE  COMMANDS            DESCRIPTION
07:55:02    RECVDIAG:   00    RETURN    RETURN TO MAIN OPTION MENU
07:55:02    RECVDIAG:   01    LOOPON    LOOP ON ERROR
07:55:02    RECVDIAG:   02    CONTINUE  CONTINUE ON ERROR
07:55:03    RECVDIAG:   03    STOPON    STOP ON ERROR
07:55:03    RECVDIAG:
07:55:03    RECVDIAG:ENTER LINE NUMBER.
```

Figure A-11. Error Control Option Menu

```
07:55:14    RECVDIAG:*****************************************************
07:55:14    RECVDIAG:     ERROR MESSAGE OPTION MENU
07:55:14    RECVDIAG:
07:55:15    RECVDIAG:   LINE  COMMANDS            DESCRIPTION
07:55:15    RECVDIAG:   00    RETURN      RETURN TO MAIN OPTION MENU
07:55:15    RECVDIAG:   01    DISPLAY     DISPLAY ERROR MESSAGES
07:55:15    RECVDIAG:   02    NODISPLY    NO ERROR MESSAGE DISPLAY
07:55:15    RECVDIAG:
07:55:15    RECVDIAG:ENTER LINE NUMBER.
```

Figure A-12. Error Message Option Menu

APPENDIX B

CALIBRATION MENUS AND DISPLAYS

Typical Calibration menus and displays are shown in Figures B-1 through B-19.

NOTE:
If a menu has a limited mode version, both versions (full mode and limited mode) are presented on the same page in this appendix.

```
16:40:06    RDASOTXX:*****************************************************
16:40:06    RDASOTXX:            CALIBRATION  MENU
16:40:06    RDASOTXX:
16:40:07    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
16:40:07    RDASOTXX:   00    RETURN      RETURN TO MAIN MENU
16:40:07    RDASOTXX:   01    CLTMAP      GENERATE CLUTTER MAP
16:40:07    RDASOTXX:   02    SUNCHK      SUNCHECK MEASUREMENTS
16:40:07    RDASOTXX:   03    SPECMS      COMPLEX SPECTRUM MEASUREMENT
16:40:07    RDASOTXX:   04    RSPCAL      RCVR/SP CALIBRATION ROUTINES
16:40:07    RDASOTXX:   05    DYNRFA      DYN RNG/RF TST ATTN ROUTINES
16:40:07    RDASOTXX:
16:40:07    RDASOTXX:ENTER LINE NUMBER.
```

Figure B-1. Calibration Menu

```
16:27:14    RDASOTXX:*****************************************************
16:27:14    RDASOTXX:            CALIBRATION  MENU
16:27:14    RDASOTXX:
16:27:14    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
16:27:14    RDASOTXX:   00    RETURN      RETURN TO MAIN MENU
16:27:14    RDASOTXX:   01    CLTMAP      GENERATE CLUTTER MAP  (INHIBITED)
16:27:14    RDASOTXX:   02    SUNCHK      SUNCHECK MEASUREMENTS  (INHIBITED)
16:27:14    RDASOTXX:   03    SPECMS      COMPLEX SPECTRUM MEASUREMENT
16:27:14    RDASOTXX:   04    RSPCAL      RCVR/SP CALIBRATION ROUTINES
16:27:14    RDASOTXX:   05    DYNRFA      DYN RNG/RF TST ATTN ROUTINES
16:27:14    RDASOTXX:
16:27:14    RDASOTXX:ENTER LINE NUMBER.
```

Figure B-2. Limited Mode Calibration Menu

```
07:55:51    CLUTRMAP:*****************************************************
07:55:51    CLUTRMAP:                CLUTTER MAP CONTROL MENU
07:55:51    CLUTRMAP:
07:55:51    CLUTRMAP:   LINE  COMMANDS            DESCRIPTION
07:55:51    CLUTRMAP:   00    RETURN      RETURN TO CALIBRATION MENU
07:55:51    CLUTRMAP:   01    PARAMS      DISPLAY/SELECT PARAMETERS
07:55:51    CLUTRMAP:   02    PROCESS     PROCESS CLUTTER MAP
07:55:52    CLUTRMAP:
07:55:52    CLUTRMAP:ENTER LINE NUMBER.
```

Figure B-3. Clutter Map Control Menu

```
07:55:59  CLUTRMAP:*****************************************************
07:56:00  CLUTRMAP:                PARAMETER SELECTION
07:56:00  CLUTRMAP:
07:56:00  CLUTRMAP:     LINE  COMMANDS            DESCRIPTION
07:56:00  CLUTRMAP:     00    COMPLETE    PARAMETER SELECTION COMPLETE
07:56:00  CLUTRMAP:     01    DST8NWTH    DESTINATION 8 NOTCHWIDTH 0.5000 M/S)
07:56:00  CLUTRMAP:     02    THRSHLD1    THRESHOLD 1 VALUE       ( 9.00  DBM)
07:56:00  CLUTRMAP:     03    THRSHLD2    THRESHOLD 2 VALUE       ( 9.00  DBM)
07:56:00  CLUTRMAP:     04    ELEVTABL    ELEVATION SCAN TABLE
07:56:00  CLUTRMAP:
07:56:00  CLUTRMAP:ENTER LINE NUMBER.
```

(Values shown are defaults.)

Figure B-4. Clutter Map Parameter Selection Menu

```
07:56:07    CLUTRMAP:*************************************************
07:56:07    CLUTRMAP:                ELEVATION ANGLES
07:56:07    CLUTRMAP:
07:56:07    CLUTRMAP:   LINE  COMMANDS            DESCRIPTION
07:56:07    CLUTRMAP:   00    COMPLETE    ELEVATION ANGLE SELECTION COMPLETE
07:56:08    CLUTRMAP:   01    ELVANG 1    ELEVATION ANGLE #1    ( 0.500 DEGS)
07:56:08    CLUTRMAP:   02    ELVANG 2    ELEVATION ANGLE #2    ( 1.500 DEGS)
07:56:08    CLUTRMAP:   03    ELVANG 3    ELEVATION ANGLE #3    ( 2.400 DEGS)
07:56:08    CLUTRMAP:   04    ELVANG 4    ELEVATION ANGLE #4    ( 3.400 DEGS)
07:56:08    CLUTRMAP:   05    ELVANG 5    ELEVATION ANGLE #5   ( 99.000 DEGS)
07:56:08    CLUTRMAP:   06    ELVANG 6    ELEVATION ANGLE #6    ( 4.333 DEGS)
07:56:08    CLUTRMAP:   07    ELVANG 7    ELEVATION ANGLE #7    ( 5.816 DEGS)
07:56:08    CLUTRMAP:   08    ELVANG 8    ELEVATION ANGLE #8    ( 8.100 DEGS)
07:56:08    CLUTRMAP:   09    ELVANG 9    ELEVATION ANGLE #9    (10.633 DEGS)
07:56:09    CLUTRMAP:   10    ELVANG10    ELEVATION ANGLE #10   (13.533 DEGS)
07:56:09    CLUTRMAP:   11    ELVANG11    ELEVATION ANGLE #11   (16.700 DEGS)
07:56:09    CLUTRMAP:   12    ELVANG12    ELEVATION ANGLE #12   (19.500 DEGS)
07:56:09    CLUTRMAP:   13    HIGH_LOW    HIGH_LOW TRANSITION   ( 2.021 DEGS)
07:56:09    CLUTRMAP:
07:56:09    CLUTRMAP:ENTER LINE NUMBER.
```

(Values shown are defaults.)

Figure B-5. Clutter Map Elevation Angles Menu

```
15:17:50   SUNCHECK:OLD AZIMUTH CORRECTION FACTOR (DEGREES):    -0.22
15:17:50   SUNCHECK:NEW AZIMUTH CORRECTION FACTOR (DEGREES):     0.62
15:17:50   SUNCHECK:PARABOLA FITTED TO AZIMUTH SCAN DATA
15:17:50   SUNCHECK:QUADRATIC COEFFICENT:                      -14.96
15:17:50   SUNCHECK: LINEAR COEFFICIENT:                        -1.05
15:17:50   SUNCHECK:      CONSTANT TERM:                       -46.59
15:17:50   SUNCHECK:GOODNESS OF (AZIMUTH) CURVE FIT:             0.9991
15:17:50   SUNCHECK:PEAK POWER MEASURED FROM AZIMUTH SCAN:       0.2202E-4
15:17:51   SUNCHECK:
15:17:51   SUNCHECK:** WARNING: SUNCHECK TEST HAS DETERMINED A PEDESTAL
15:17:51   SUNCHECK:ANGULAR CORRECTION OF GREATER THAN 0.3333 DEGREES.
15:17:51   SUNCHECK:(1) CHECK ACCURACY OF INPUT TIME
15:17:51   SUNCHECK:(2) CHECK ENCODER ALIGNMENT
15:17:51   SUNCHECK:(3) CHECK TIGHTNESS OF PEDESTAL MOUNTING BOLTS
15:17:51   SUNCHECK:UPDATE CALIB. DATA WITH NEW AZIMUTH CORRECTION (Y OR N)
15:17:51   SUNCHECK:Y
15:17:51   SUNCHECK:** WARNING ** WARNING ** WARNING ** WARNING **
15:17:51   SUNCHECK: THE ANGULAR CORRECTION VALUE IS GREATER THAN
15:17:52   SUNCHECK: .5 DEGREES.  CONSULT THE TECHNICAL MANUAL FOR
15:17:52   SUNCHECK: THE PROPER CORRECTIVE ACTION THAT MUST BE TAKEN
15:17:52   SUNCHECK: NOW.  BEFORE ACCEPTING AN ANGULAR CORRECTION
15:17:52   SUNCHECK: VALUE LARGER THAN .5 DEGREES, BE SURE YOU HAVE
15:17:52   SUNCHECK: A BACKUP OF THE FILE LONGTERM.DAT.
15:17:52   SUNCHECK:
15:17:52   SUNCHECK:DO YOU STILL WANT TO UPDATE THE CORRECTION VALUE?[Y/N]
15:17:52   SUNCHECK:
```

Figure B-6. Suncheck Subtest 1 Sample Output

```
16:40:35    SPECTRUM:*****************************************************
16:40:35    SPECTRUM:              COMPLEX SPECTRUM PROCESS MENU
16:40:35    SPECTRUM:
16:40:35    SPECTRUM:   LINE  COMMANDS            DESCRIPTION
16:40:35    SPECTRUM:   00    RETURN      RETURN TO CALIBRATION MENU
16:40:35    SPECTRUM:   01    PEDPOS      POSITION PEDESTAL
16:40:35    SPECTRUM:   02    SELPARM     PARAMETER SELECTION
16:40:35    SPECTRUM:   03    DATACOLL    I AND Q COLLECTION AND PROCESSING
16:40:35    SPECTRUM:   04    DISPPROD    DISPLAY COMPLEX SPECTRUM PRODUCTS
16:40:36    SPECTRUM:
16:40:36    SPECTRUM:ENTER LINE NUMBER.
```

Figure B-7. Complex Spectrum Process Menu

```
16:27:43    SPECTRUM:*****************************************************
16:27:43    SPECTRUM:              COMPLEX SPECTRUM PROCESS MENU
16:27:43    SPECTRUM:
16:27:43    SPECTRUM:   LINE  COMMANDS            DESCRIPTION
16:27:43    SPECTRUM:   00    RETURN      RETURN TO CALIBRATION MENU
16:27:43    SPECTRUM:   01    PEDPOS      POSITION PEDESTAL .... (INHIBITED)
16:27:43    SPECTRUM:   02    SELPARM     PARAMETER SELECTION
16:27:43    SPECTRUM:   03    DATACOLL    I AND Q COLLECTION AND PROCESSING
16:27:43    SPECTRUM:   04    DISPPROD    DISPLAY COMPLEX SPECTRUM PRODUCTS
16:27:43    SPECTRUM:
16:27:43    SPECTRUM:ENTER LINE NUMBER.
```

Figure B-8. Limited Mode Complex Spectrum Process Menu

```
08:06:24    SPECTRUM:*****************************************************
08:06:24    SPECTRUM:  COMPLEX SPECTRUM   -- PEDESTAL MANUAL CONTROL MENU
08:06:25    SPECTRUM:
08:06:25    SPECTRUM:   LINE  COMMANDS            DESCRIPTION
08:06:25    SPECTRUM:   00    RETURN      RETURN TO COMPLEX SPECTRUM PROCESS
08:06:25    SPECTRUM:   01    AZPOS       POSITION AZIMUTH COMMAND
08:06:25    SPECTRUM:   02    ELPOS       POSITION ELEVATION COMMAND
08:06:25    SPECTRUM:   03    CHKLOCW     DISPLAY CURRENT POSITION
08:06:25    SPECTRUM:
08:06:25    SPECTRUM:ENTER LINE NUMBER.
```

Figure B-9. Complex Spectrum Pedestal Manual Control Menu

```
08:06:50    SPECTRUM:*****************************************************
08:06:50    SPECTRUM:  COMPLEX SPECTRUM - PARAMETER SELECTION MENU
08:06:50    SPECTRUM:
08:06:50    SPECTRUM:LINE  COMMANDS            DESCRIPTION
08:06:50    SPECTRUM: 00    RETURN     RETURN TO SPECTRUM PROCESS MENU
08:06:50    SPECTRUM: 01    TARGTYPE   SET TARGET TYPE         *** DKLY  ***
08:06:50    SPECTRUM: 02    INJPOINT   SET INJECTION POINT     *** RECVR ***
08:06:51    SPECTRUM: 03    INJLEVEL   SET SIGNAL INJECT LEVEL ***   -40 ***
08:06:51    SPECTRUM: 04    PULSWID    SET PULSE WIDTH         *** SHRT  ***
08:06:51    SPECTRUM: 05    PULSREP    SET PULSE REPT INT      *** PRI 1 ***
08:06:51    SPECTRUM: 06    RANGE      SET RANGE               ***  N/A  ***
08:06:51    SPECTRUM: 07    LINPHAS    SET LIN CLOCK PHS       ***   8   ***
08:06:51    SPECTRUM: 08    LOGPHAS    SET LOG CLOCK PHS       ***  19   ***
08:06:51    SPECTRUM: 09    PULSNUM    SET # OF FFT POINTS     ***   32  ***
08:06:51    SPECTRUM: 10    NOTCH      SET NOTCH WIDTH         *** 1.0000***
08:06:51    SPECTRUM: 11    WINDOW     SET WINDOW FUNCTION     *** BLKMN ***
08:06:52    SPECTRUM: 12    DEFAULT    RE-SET ALL VALUES TO DEFAULTS
08:06:52    SPECTRUM:
08:06:52    SPECTRUM:ENTER LINE NUMBER.
```

(Values shown are defaults.)

Figure B-10. Complex Spectrum Parameter Selection Menu

```
16:41:37    SPECTRUM:*************************************************
16:41:37    SPECTRUM:              COMPLEX SPECTRUM - TARGET TYPE
16:41:37    SPECTRUM:
16:41:37    SPECTRUM:   LINE  COMMANDS            DESCRIPTION
16:41:37    SPECTRUM:   00    RETURN      RETURN TO PARAMETER SELECTION MENU
16:41:37    SPECTRUM:   01    DKLY        SET TARGET TO DKLY
16:41:37    PECTRUM:    02    CW          SET TARGET TO CW
16:41:38    SPECTRUM:   03    RFDR        SET TARGET TO RF
16:41:38    SPECTRUM:   04    RADAR       SET TARGET TO RADAR DATA
16:41:38    SPECTRUM:
16:41:38    SPECTRUM:ENTER LINE NUMBER.
```

Figure B-11. Complex Spectrum Target Type Menu

```
16:28:02    SPECTRUM:*************************************************
16:28:02    SPECTRUM:              COMPLEX SPECTRUM - TARGET TYPE
16:28:02    SPECTRUM:
16:28:02    SPECTRUM:   LINE  COMMANDS          DESCRIPTION
16:28:02    SPECTRUM:   00    RETURN      RETURN TO PARAMETER SELECTION MENU
16:28:02    SPECTRUM:   01    DKLY        SET TARGET TO DKLY
16:28:02    SPECTRUM:   02    CW          SET TARGET TO CW
16:28:02    SPECTRUM:   03    RFDR        SET TARGET TO RF
16:28:02    SPECTRUM:   04    RADAR       SET TARGET TO RADAR DATA .. (INHIB-
ITED)
16:28:02    SPECTRUM:
16:28:02    SPECTRUM:ENTER LINE NUMBER.
```

Figure B-12. Limited Mode Complex Spectrum Target Type Menu

```
08:07:09    SPECTRUM:*****************************************************
08:07:09    SPECTRUM:    COMPLEX SPECTRUM   -- BIN SELECTION MENU
08:07:09    SPECTRUM:
08:07:09    SPECTRUM:   LINE  COMMANDS            DESCRIPTION
08:07:09    SPECTRUM:   00    RETURN      RETURN TO COMPLEX SPECTRUM PROCESS
08:07:10    SPECTRUM:   01    BIN1        PROCESS BIN 1 FOR DISPLAY
08:07:10    SPECTRUM:   02    BIN2        PROCESS BIN 2 FOR DISPLAY
08:07:10    SPECTRUM:   03    BIN3        PROCESS BIN 3 FOR DISPLAY
08:07:10    SPECTRUM:   04    BIN4        PROCESS BIN 4 FOR DISPLAY
08:07:10    SPECTRUM:
08:07:10    SPECTRUM:ENTER LINE NUMBER.
```

Figure B-13. Complex Spectrum Bin Selection Menu

```
08:07:18    SPECTRUM:*****************************************************
08:07:18    SPECTRUM:  COMPLEX SPECTRUM  --  PRODUCT DISPLAY MENU -  BIN  1
08:07:18    SPECTRUM:
08:07:18    SPECTRUM:   LINE  COMMANDS            DESCRIPTION
08:07:18    SPECTRUM:   00    RETURN      RETURN TO BIN SELECTION MENU
08:07:19    SPECTRUM:   01    UPOWERHZ    UNFILTERED RAW POWER IN TABLE FORM
08:07:19    SPECTRUM:   02    FPOWERHZ    FILTERED   RAW POWER IN TABLE FORM
08:07:19    SPECTRUM:   03    UPOWERDB    UNFILTERED RAW POWER CONVERTED TO DB
08:07:19    SPECTRUM:   04    FPOWERDB    FILTERED   RAW POWER CONVERTED TO DB
08:07:19    SPECTRUM:   05    UPOWERPH    UNFILTERED PHASE VALUES IN DEGREES
08:07:19    SPECTRUM:   06    FPOWERPH    FILTERED   PHASE VALUES IN DEGREES
08:07:19    SPECTRUM:   07    UPLOTPOW    UNFILTERED POWER VS FREQ GRAPH/TABLE
08:07:19    SPECTRUM:   08    FPLOTPOW    FILTERED   POWER VS FREQ GRAPH/TABLE
08:07:19    SPECTRUM:   09    UPLOTPH     UNFILTERED PHASE VS FREQ GRAPH/TABLE
08:07:19    SPECTRUM:   10    FPLOTPH     FILTERED   PHASE VS FREQ GRAPH/TABLE
08:07:19    SPECTRUM:   11    SUMDATA     DISPLAY SELECTED BIN SUMMARY DATA
08:07:19    SPECTRUM:
08:07:19    SPECTRUM:ENTER LINE NUMBER.
```

Figure B-14. Complex Spectrum Product Display Menu

```
15:28:00    RCSIGCAL:*****************************************************
15:28:00    RCSIGCAL:   RSP CALIBRATION SELECTION MENU
15:28:00    RCSIGCAL:
15:28:00    RCSIGCAL:   LINE  COMMANDS           DESCRIPTION
15:28:00    RCSIGCAL:   00    RETURN      RETURN TO CALIBRATION MENU
15:28:00    RCSIGCAL:   01    RFESSP      REFLECT ERROR ESTIMATE-SP
15:28:00    RCSIGCAL:   02    RFESLP      REFLECT ERROR ESTIMATE-LP
15:28:01    RCSIGCAL:   03    MINSIG      MIN DISCERNIBLE SIG CHECK
15:28:01    RCSIGCAL:   04    TSPTCL      TEST PATH CALIBRATION
15:28:01    RCSIGCAL:   05    POWMON      POWER MONITOR CONSISTENCY
15:28:01    RCSIGCAL:   06    CWRFAC      CW SUB REFLECT ACCURACY VER
15:28:01    RCSIGCAL
15:28:01    RCSIGCAL:ENTER LINE NUMBER
```

Figure B-15. Receiver/Signal Processor Selection Menu

```
15:28:00    RCSIGCAL:*****************************************************
15:28:00    RCSIGCAL:   RSP CALIBRATION SELECTION MENU
15:28:00    RCSIGCAL:
15:28:00    RCSIGCAL:   LINE  COMMANDS           DESCRIPTION
15:28:00    RCSIGCAL:   00    RETURN      RETURN TO CALIBRATION MENU
15:28:00    RCSIGCAL:   01    RFESSP      REFLECT ERROR ESTIMATE-SP
15:28:00    RCSIGCAL:   02    RFESLP      REFLECT ERROR ESTIMATE-LP
15:28:01    RCSIGCAL:   03    MINSIG      MIN DISCERNIBLE SIG CHECK
15:28:01    RCSIGCAL:   04    TSPTCL      TEST PATH CAL ....INHIBITED
15:28:01    RCSIGCAL:   05    POWMON      POWER MONITOR CONSISTENCY
15:28:01    RCSIGCAL:   06    CWRFAC      CW SUB REFLECT ACCURACY VER
15:28:01    RCSIGCAL:
15:28:01    RCSIGCAL:ENTER LINE NUMBER
```

Figure B-16. Limited Mode Receiver/Signal Processor Selection Menu

```
15:28:00    RCSIGAL:*****************************************************
15:28:00    RCSIGCAL:   CW TEST PATH CALIBRATION CONTROL MENU
15:28:01    RCSIGCAL:
15:28:01    RCSIGCAL:   LINE  COMMANDS           DESCRIPTION
15:28:01    RCSIGCAL:   00    RETURN   RETURN TO RSP CALIBRATION SELECTION MENU
15:28:01    RCSIGCAL:   01    RADIAL   INJECT SIGNAL
15:28:01    RCSIGCAL:   02    SIGOFF   TURN OFF SIGNAL SOURCE
15:28:01    RCSIGCAL:   03    INPCAL   INPUT MEASURED VALUES/DISPLAY RESULTS
15:28:01    RCSIGCAL:   04    TOGGLE   TEST ATTENUATION ..............8 DB
15:28:01    RCSIGCAL:
15:28:01    RCSIGCAL:ENTER LINE NUMBER
```

Figure B-17. CW Test Path Calibration Control Menu

```
3:59:31     DYNRFATN:      DYNRANGE/RF TEST ATTENUATION SELECTION MENU
13:59:31    DYNRFATN:
13:59:31    DYNRFATN:   LINE  COMMANDS            DESCRIPTION
13:59:31    DYNRFATN:   00    RETURN      RETURN TO CALIBRATION MENU
13:59:31    DYNRFATN:   01    ADBIAS      A/D BIAS CALCULATION
13:59:31    DYNRFATN:   02    AGCCAL      AGC CALIBRATION CALCULATION
13:59:31    DYNRFATN:   03    DYNRANGE    DYNAMIC RANGE CALCULATION
13:59:31    DYNRFATN:   04    RFATNCAL    RF TEST ATTENUATOR STEP CALCULATION
13:59:31    DYNRFATN:
13:59:31    DYNRFATN:ENTER LINE NUMBER.
```

Figure B-18. Dynamic Range/RF Test Attenuator Step Calculation Selection Menu

```
13:59:47    DYNRFATN:*****************************************************
13:59:47    DYNRFATN:     AGC CALIBRATION DATA MENU
13:59:47    DYNRFATN:
13:59:47    DYNRFATN:   LINE  COMMANDS            DESCRIPTION
13:59:47    DYNRFATN:   00    RETURN      NO DEST 9 UPDATE
13:59:47    DYNRFATN:   01    UPDATE      UPDATE RDASOT DEST 9
13:59:47    DYNRFATN:   02    VWDATA      VIEW AGC ATTENUATOR DATA
13:59:47    DYNRFATN:
13:59:47    DYNRFATN:ENTER LINE NUMBER.
```

Figure B-19. Automatic Gain Control Calibration Data Display/Update Menu

APPENDIX C

MANUAL CONTROL AND DISPLAY MENUS AND DISPLAYS

Typical Manual Control and Display menus and displays are shown in Figures C-1 through C-15.

NOTE:
If a menu has a limited mode version, both versions (full mode and limited mode) are presented on the same page in this appendix.

```
16:42:05    RDASOTXX:*****************************************************
16:42:05    RDASOTXX:           MANUAL CONTROL AND DISPLAY MENU
16:42:05    RDASOTXX:
16:42:05    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
16:42:05    RDASOTXX:   00    RETURN      RETURN TO MAIN MENU
16:42:05    RDASOTXX:   01    PEDMCD      CONTROL PEDESTAL
16:42:05    RDASOTXX:   02    TESTSIG     CONTROL RCVR/SIGNAL PROC
16:42:05    RDASOTXX:   03    DAUDSP      DAU BITE DISPLAY
16:42:05    RDASOTXX:   04    PSPDWNLD    DOWNLOAD PSP
16:42:05    RDASOTXX:
16:42:05    RDASOTXX:ENTER LINE NUMBER.
```

Figure C-1. Manual Control and Display Menu

```
16:28:57    RDASOTXX:*****************************************************
16:28:57    RDASOTXX:           MANUAL CONTROL AND DISPLAY MENU
16:28:57    RDASOTXX:
16:28:57    RDASOTXX:   LINE  COMMANDS            DESCRIPTION
16:28:57    RDASOTXX:   00    RETURN      RETURN TO MAIN MENU
16:28:57    RDASOTXX:   01    PEDMCD      CONTROL PEDESTAL . (INHIBITED)
16:28:57    RDASOTXX:   02    TESTSIG     CONTROL RCVR/SIGNAL PROC
16:28:58    RDASOTXX:   03    DAUDSP      DAU BITE DISPLAY
16:28:58    RDASOTXX:   04    PSPDWNLD    DOWNLOAD PSP
16:28:58    RDASOTXX:
16:28:58    RDASOTXX:ENTER LINE NUMBER.
```

Figure C-2. Limited Mode Manual Control and Display Menu

```
08:08:02    PEDMCD:*****************************************************
08:08:02    PEDMCD:               PEDMCD FUNCTION SELECTION MENU
08:08:02    PEDMCD:
08:08:02    PEDMCD:     LINE  COMMANDS            DESCRIPTION
08:08:03    PEDMCD:     00    RETURN      RETURN TO MANUAL CONTROL MENU
08:08:03    PEDMCD:     01    DISPOS      DISPLAY POSTION
08:08:03    PEDMCD:     02    PRKPED      PARK PEDESTAL
08:08:03    PEDMCD:     03    PEDMC       PEDESTAL MANUAL CONTROL
08:08:03    PEDMCD:     04    TOGGLE      RECORD DATA....NO
08:08:03    PEDMCD:     05    VIEW        LOOK AT RECORDED PEDESTAL DATA
08:08:03    PEDMCD:
08:08:03    PEDMCD:ENTER LINE NUMBER.
```

Figure C-3. Control Pedestal Function Selection Menu

```
07:52:39    PEDMCD:*****************************************************
07:52:39    PEDMCD:    PEDESTAL MANUAL CONTROL MENU
07:52:39    PEDMCD:
07:52:39    PEDMCD:     LINE  COMMANDS            DESCRIPTION
07:52:39    PEDMCD:     00    RETURN      TERMINATE MANUAL CONTROL
07:52:39    PEDMCD:     01    AZPOS       COMMAND AZIMUTH POSITION
07:52:39    PEDMCD:     02    ELPOS       COMMAND ELEVATION POSITION
07:52:39    PEDMCD:     03    AZRATE      COMMAND AZIMUTH RATE
07:52:39    PEDMCD:     04    ELRATE      COMMAND ELEVATION RATE
07:52:39    PEDMCD:     05    DISRAP      DISPLAY RATE AND POSITION
07:52:39    PEDMCD:
07:52:39    PEDMCD:ENTER LINE NUMBER.
```

Figure C-4. Pedestal Manual Control Menu

```
16:43:21    TESTSIG:*****************************************************
16:43:21    TESTSIG:             TESTSIG SOURCE SELECTION MENU
16:43:21    TESTSIG:
16:43:21    TESTSIG:    LINE  COMMANDS            DESCRIPTION
16:43:21    TESTSIG:    00    RETURN      RETURN TO MANUAL CONTROL MENU
16:43:21    TESTSIG:    01    NOSRCE      ALL SOURCES OFF
16:43:21    TESTSIG:    02    RADAR       RADAR SOURCE
16:43:21    TESTSIG:    03    KLYDRV      KLYSTRON DRIVE SOURCE
16:43:21    TESTSIG:    04    KLYOUT      KLYSTRON OUTPUT SOURCE
16:43:21    TESTSIG:    05    CWSRCE      CW SOURCE
16:43:21    TESTSIG:    06    RFNOISE     RF NOISE SOURCE
16:43:21    TESTSIG:    07    DRFPCW      DELAYED RF PULSE USING CW SOURCE
16:43:21    TESTSIG:
16:43:21    TESTSIG:ENTER LINE NUMBER.
```

Figure C-5. Source Selection Menu

```
16:29:47    TESTSIG:*****************************************************
16:29:47    TESTSIG:             TESTSIG SOURCE SELECTION MENU
16:29:47    TESTSIG:
16:29:47    TESTSIG:    LINE  COMMANDS            DESCRIPTION
16:29:48    TESTSIG:    00    RETURN    RETURN TO MANUAL CONTROL MENU
16:29:48    TESTSIG:    01    NOSRCE    ALL SOURCES OFF
16:29:48    TESTSIG:    02    RADAR     RADAR SOURCE  (INHIBITED)
16:29:48    TESTSIG:    03    KLYDRV    KLYSTRON DRIVE SOURCE
16:29:48    TESTSIG:    04    KLYOUT    KLYSTRON OUTPUT SOURCE
16:29:48    TESTSIG:    05    CWSRCE    CW SOURCE
16:29:48    TESTSIG:    06    RFNOISE   RF NOISE SOURCE
16:29:48    TESTSIG:    07    DRFPCW    DELAYED RF PULSE USING CW SOURCE
16:29:48    TESTSIG:
16:29:48    TESTSIG:ENTER LINE NUMBER.
```

Figure C-6. Limited Mode Source Selection Menu

```
08:09:06    TESTSIG:*****************************************************
08:09:06    TESTSIG:               RADAR SOURCE CONTROL MENU
08:09:06    TESTSIG:
08:09:07    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:09:07    TESTSIG:    00    RETURN    RETURN TO TESTSIG SOURCE SELECTION MENU
08:09:07    TESTSIG:    01    RADIAL     INJECT SIGNAL
08:09:07    TESTSIG:    02    TOGGLE     XMTR W/G SWITCH POSITION ..... ANTENNA
08:09:07    TESTSIG:    03    RIOS       RCVR INTERFACE OUTPUT SELECT
08:09:07    TESTSIG:    04    PWPRF      PULSEWIDTH / PRF ........... SHORT / 5
08:09:07    TESTSIG:    05    RSEC       COMPUTE RSEC LIMITS
08:09:07    TESTSIG:    06    PEDCMD     PEDESTAL CONTROL COMMANDS
08:09:07    TESTSIG:
08:09:07    TESTSIG:ENTER LINE NUMBER.




08:10:12    TESTSIG:*****************************************************
08:10:12    TESTSIG:      KLYSTRON DRIVE SOURCE CONTROL MENU
08:10:13    TESTSIG:
08:10:13    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:10:13    TESTSIG:    00    RETURN     RETURN TO TESTSIG SOURCE SELECTION MENU
08:10:13    TESTSIG:    01    RADIAL     INJECT SIGNAL
08:10:13    TESTSIG:    02    TOGGLE     RCVR INJECTION POINT ....... CABINET
08:10:13    TESTSIG:    03    RIOS       RCVR INTERFACE OUTPUT SELECT
08:10:13    TESTSIG:    04    ATTN       TEST ATTENUATION ...........  15 DB
08:10:13    TESTSIG:    05    HSPEA      HSP TEST PATTERN (HEX) ..... AAAA
08:10:13    TESTSIG:    06    TOGGLE     RCVR PROTECT ON ............ NORMAL
08:10:13    TESTSIG:    07    TOGGLE     INTERFERENCE SUPPRESSION ... DISABLED
08:10:14    TESTSIG:    08    TSTBW      TEST A/D BANDWIDTH ......... WIDE
08:10:14    TESTSIG:    09    PWPRF      PULSEWIDTH / PRF ........... SHORT / 5
08:10:14    TESTSIG:    10    RANGE      RANGE .....................   1.5 KM
08:10:14    TESTSIG:
08:10:14    TESTSIG:ENTER LINE NUMBER.
```

(Values shown are defaults.)

Figure C-7. Source Control Menus
(Sheet 1 of 3)

```
06:57:46    TESTSIG:*****************************************************
06:57:46    TESTSIG:      KLYSTRON OUTPUT SOURCE CONTROL MENU
06:57:46    TESTSIG:
06:57:46    TESTSIG:    LINE  COMMANDS            DESCRIPTION
06:57:46    TESTSIG:    00    RETURN     RETURN TO TESTSIG SOURCE SELECTION MENU
06:57:46    TESTSIG:    01    RADIAL     INJECT SIGNAL
06:57:46    TESTSIG:    02    TOGGLE     RCVR INJECTION POINT   ... CABINET
06:57:47    TESTSIG:    03    RIOS       RCVR INTERFACE OUTPUT SELECT
06:57:47    TESTSIG:    04    ATTN       TEST ATTENUATION ........  15 DB
06:57:47    TESTSIG:    05    HSPEA      HSP TEST PATTERN (HEX).... AAAA
06:57:47    TESTSIG:    06    TOGGLE     RCVR PROTECT ON .......... NORMAL
06:57:47    TESTSIG:    07    TOGGLE     INTERFERENCE SUPPRESSION . DISABLED
06:57:47    TESTSIG:    08    TSTBW      TEST A/D BANDWIDTH ....... WIDE
06:57:47    TESTSIG:    09    PWPRF      PULSEWIDTH / PRF ......... SHORT / 5
06:57:47    TESTSIG:    10    RSEC       COMPUTE RSEC LIMITS
06:57:47    TESTSIG:
06:57:47    TESTSIG:ENTER LINE NUMBER.
```

```
08:12:44    TESTSIG:*****************************************************
08:12:44    TESTSIG:               CW SOURCE CONTROL MENU
08:12:44    TESTSIG:
08:12:44    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:12:44    TESTSIG:    00    RETURN     RETURN TO TESTSIG SOURCE SELECTION MENU
08:12:45    ESTSIG:     01    RADIAL     INJECT SIGNAL
08:12:45    TESTSIG:    02    TOGGLE     RCVR INJECTION POINT .... CABINET
08:12:45    TESTSIG:    03    RIOS       RCVR INTERFACE OUTPUT SELECT
08:12:45    TESTSIG:    04    ATTN       TEST ATTENUATION .......  15 DB
08:12:45    TESTSIG:    05    HSPEA      HSP TEST PATTERN (HEX) .. AAAA
08:12:45    TESTSIG:    06    TOGGLE     RCVR PROTECT ON ......... NORMAL
08:12:45    TESTSIG:    07    TOGGLE     INTERFERENCE SUPPRESSION  DISABLED
08:12:45    TESTSIG:    08    TSTBW      TEST A/D BANDWIDTH ...... WIDE
08:12:45    TESTSIG:    09    TOGGLE     AGC TEST SELECT ......... DISABLED
08:12:46    TESTSIG:
08:12:46    TESTSIG:ENTER LINE NUMBER.
```

(Values shown are defaults.)

Figure C-7. Source Control Menus
(Sheet 2 of 3)

```
08:13:26    TESTSIG:*****************************************************
08:13:26    TESTSIG:             RF NOISE SOURCE CONTROL MENU
08:13:26    TESTSIG:
08:13:26    TESTSIG:    LINE  COMMANDS             DESCRIPTION
08:13:26    TESTSIG:    00    RETURN   RETURN TO TESTSIG SOURCE SELECTION MENU
08:13:27    TESTSIG:    01    RADIAL   INJECT SIGNAL
08:13:27    TESTSIG:    02    TOGGLE   RCVR INJECTION POINT ..... CABINET
08:13:27    TESTSIG:    03    RIOS     RCVR INTERFACE OUTPUT SELECT
08:13:27    TESTSIG:    04    ATTN     TEST ATTENUATION .........  15 DB
08:13:27    TESTSIG:    05    HSPEA    HSP TEST PATTERN (HEX) .... AAAA
08:13:27    TESTSIG:    06    TOGGLE   RCVR PROTECT ON ........... NORMAL
08:13:27    TESTSIG:    07    TOGGLE   INTERFERENCE SUPPRESSION .. DISABLED
08:13:27    TESTSIG:    08    TSTBW    TEST A/D BANDWIDTH ........ WIDE
08:13:27    TESTSIG:
08:13:27    TESTSIG:ENTER LINE NUMBER.
```

```
08:13:56    TESTSIG:*****************************************************
08:13:56    TESTSIG:     DELAYED RF PULSE USING CW SOURCE CONTROL MENU
08:13:56    TESTSIG:
08:13:56    TESTSIG:    LINE  COMMANDS             DESCRIPTION
08:13:56    TESTSIG:    00    RETURN     RETURN TO TESTSIG SOURCE SELECTION MENU
08:13:56    TESTSIG:    01    RADIAL     INJECT SIGNAL
08:13:56    TESTSIG:    02    TOGGLE     RCVR INJECTION POINT .... CABINET
08:13:56    TESTSIG:    03    RIOS       RCVR INTERFACE OUTPUT SELECT
08:13:56    TESTSIG:    04    ATTN       TEST ATTENUATION .......  15 DB
08:13:56    TESTSIG:    05    HSPEA      HSP TEST PATTERN (HEX) .. AAAA
08:13:57    TESTSIG:    06    TOGGLE     RCVR PROTECT ON ......... NORMAL
08:13:57    TESTSIG:    07    TOGGLE     INTERFERENCE SUPPRESSION  DISABLED
08:13:57    TESTSIG:    08    TSTBW      TEST A/D BANDWIDTH ...... WIDE
08:13:57    TESTSIG:    09    TOGGLE     AGC TEST SELECT ......... DISABLED
08:13:57    TESTSIG:    10    PWPRF      PULSEWIDTH / PRF ........ SHORT / 5
08:13:57    TESTSIG:    11    RANGE      RANGE .................   1.5 KM
08:13:57    TESTSIG:
08:13:57    TESTSIG:
08:13:57    TESTSIG:ENTER LINE NUMBER.
```

(Values shown are defaults.)

Figure C-7. Source Control Menus
(Sheet 3 of 3)

```
08:14:14    TESTSIG:*****************************************************
08:14:14    TESTSIG:               PULSE WIDTH SELECTION MENU
08:14:14    TESTSIG:
08:14:14    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:14:14    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
08:14:14    TESTSIG:    01    PWSHORT     SHORT PULSE
08:14:14    TESTSIG:    02    PWLONG      LONG  PULSE
08:14:14    TESTSIG:
08:14:14    TESTSIG:ENTER LINE NUMBER.
```

```
07:55:48    TESTSIG:*****************************************************
07:55:48    TESTSIG:    PULSE REPETITION FREQUENCY (PRF) SELECTION MENU
07:55:48    TESTSIG:
07:55:48    TESTSIG:    LINE  COMMANDS            DESCRIPTION
07:55:48    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
07:55:48    TESTSIG:    01    PRFNO1      PRF 1 -  321.9 HZ
07:55:48    TESTSIG:    02    PRFNO2      PRF 2 -  446.4 HZ
07:55:48    TESTSIG:    03    PRFNO3      PRF 3 -  643.8 HZ
07:55:48    TESTSIG:    04    PRFNO4      PRF 4 -  857.1 HZ
07:55:48    TESTSIG:    05    PRFNO5      PRF 5 - 1013.5 HZ
07:55:49    TESTSIG:    06    PRFNO6      PRF 6 - 1094.9 HZ
07:55:49    TESTSIG:    07    PRFNO7      PRF 7 - 1181.1 HZ
07:55:49    TESTSIG:    08    PRFNO8      PRF 8 - 1282.1 HZ
07:55:49    TESTSIG:    09    PRFNO9      PRF 9 -  545.0 HZ
07:55:49    TESTSIG:
07:55:49    TESTSIG:ENTER LINE NUMBER.
```

NOTE:
Only PRF Set 3 (C) is shown. Actual PRF Set is determined by Adaptation Data value DELTAPRF (TR4).

Figure C-8. Pulse Width and PRF Selection Menus

```
08:16:28    TESTSIG:*****************************************************
08:16:28    TESTSIG:            RSEC PARAMETERS SELECTION MENU
08:16:28    TESTSIG:
08:16:28    TESTSIG:   LINE  COMMANDS            DESCRIPTION
08:16:28    TESTSIG:   00    RETURN     RETURN TO SOURCE CONTROL MENU
08:16:28    TESTSIG:   01    COMPUTE    COMPUTE SPECTRAL BAND WIDTHS
08:16:28    TESTSIG:   02    LOSS       LOSS FROM KLY OUT TO 4A20-J5... 51.5 dB
08:16:28    TESTSIG:   03    PW3DB      3 DB PULSE WIDTH ..............  1.45 uS
08:16:28    TESTSIG:   04    PW6DB      6 DB PULSE WIDTH ..............  1.60 uS
08:16:28    TESTSIG:   05    PRTIME     PULSE RISE TIME (10%-90%) .....  0.12 uS
08:16:29    TESTSIG:
08:16:29    TESTSIG:ENTER LINE NUMBER.
```

(Values shown are defaults.)

Figure C-9. RSEC Parameters Selection Menu

```
08:17:12    TESTSIG:*****************************************************
08:17:12    TESTSIG:     RECEIVER INTERFACE OUTPUT SELECT (RIOS) MENU
08:17:12    TESTSIG:
08:17:12    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:17:12    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
08:17:12    TESTSIG:    01    PHSHFT      PHASE SHIFT CONTROL
08:17:12    TESTSIG:    02    LBUB30      WORD 30, BITS 15-8
08:17:12    TESTSIG:    03    LBLB30      WORD 30, BITS  7-0
08:17:12    TESTSIG:    04    LBUB31      WORD 31, BITS 15-8
08:17:13    TESTSIG:    05    LBLB31      WORD 31, BITS  7-0
08:17:13    TESTSIG:    06    LBUB32      WORD 32, BITS 15-8
08:17:13    TESTSIG:    07    RCVRSTA     RECEIVER STATUS
08:17:13    TESTSIG:    08    TSTMON      RF/IF TEST MONITOR OUTPUT
08:17:13    TESTSIG:
08:17:13    TESTSIG:ENTER LINE NUMBER.



08:17:50    TESTSIG:*****************************************************
08:17:50    TESTSIG:           RECEIVER TEST SELECT (RTS) MENU
08:17:50    TESTSIG:
08:17:50    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:17:50    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
08:17:51    TESTSIG:    01    RFDET       DETECTED RF
08:17:51    TESTSIG:    02    IFDET       DETECTED IF
08:17:51    TESTSIG:    03    RCVRLVT     RECEIVER LOG VIDEO TEST
08:17:51    TESTSIG:    04    GRDPLVT     GUARD (-) LOG VIDEO TEST
08:17:51    TESTSIG:    05    GRDMLVT     GUARD (+) LOG VIDEO TEST
08:17:51    TESTSIG:    06    DCOFFST     DC OFFSET TEST
08:17:51    TESTSIG:
08:17:51    TESTSIG:ENTER LINE NUMBER.



08:17:50    TESTSIG:*****************************************************
08:17:50    TESTSIG:           RECEIVER TEST SELECT (RTS) MENU
08:17:50    TESTSIG:
08:17:50    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:17:50    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
08:17:51    TESTSIG:    01    RFDET       DETECTED RF
08:17:51    TESTSIG:    02    IFDET       DETECTED IF
08:17:51    TESTSIG:    03    RCVRLVT     RECEIVER LOG VIDEO TEST
08:17:51    TESTSIG:    04    GRDPLVT     NO ISU PRESENT
08:17:51    TESTSIG:    05    GRDMLVT     NO ISU PRESENT
08:17:51    TESTSIG:    06    DCOFFST     DC OFFSET TEST
08:17:51    TESTSIG:
08:17:51    TESTSIG:ENTER LINE NUMBER.
```

Figure C-10. RIOS and Associated Menus
(Sheet 1 of 4)

```
11:58:26    TESTSIG:*****************************************************
11:58:26    TESTSIG:              DETECTED RF SELECTION MENU         PAGE 1
11:58:26    TESTSIG:
11:58:26    TESTSIG:    LINE  COMMANDS            DESCRIPTION
11:58:26    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
11:58:27    TESTSIG:    01    PAGE 2      PAGE 2 OF RF SELECTION MENU
11:58:27    TESTSIG:    02    A5J1        MIXER/PREAMP INPUT
11:58:27    TESTSIG:    03    A5J5        MIXER/PREAMP INPUT TEST JACK
11:58:27    TESTSIG:    04    A5J2        STALO INPUT TO MIXER/PREAMP
11:58:27    TESTSIG:    05    A5J6        STALO TEST JACK
11:58:27    TESTSIG:    06    A22J3       FREQ GEN RF SAMPLE
11:58:27    TESTSIG:    07    A22J7       FREQ GEN RF SAMPLE TEST JACK
11:58:27    TESTSIG:    08    A22J2       DRIVER RF SAMPLE
11:58:27    TESTSIG:    09    A22J6       DRIVER RF SAMPLE TEST JACK
11:58:27    TESTSIG:    10    A21J1       KLYSTRON RF SAMPLE
11:58:27    TESTSIG:    11    DC1         KLYSTRON RF SAMPLE TEST JACK
11:58:27    TESTSIG:
11:58:27    TESTSIG:ENTER LINE NUMBER.
```

```
11:58:52    TESTSIG:*****************************************************
11:58:52    TESTSIG:              DETECTED RF SELECTION MENU         PAGE 2
11:58:52    TESTSIG:
11:58:52    TESTSIG:    LINE  COMMANDS            DESCRIPTION
11:58:52    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
11:58:52    TESTSIG:    01    PAGE 1      PAGE 1 OF RF SELECTION MENU
11:58:52    TESTSIG:    02    A23J1       SELECTED RF
11:58:52    TESTSIG:    03    A23J3       SELECTED RF TEST JACK
11:58:52    TESTSIG:    04    A23J2       ATTENUATED TEST RF
11:58:52    TESTSIG:    05    A23J4       ATTENUATED TEST RF TEST JACK
11:58:52    TESTSIG:    06    A24J2       RFE-SELECTED TEST RF
11:58:52    TESTSIG:    07    A24J4       RFE-SELECTED TEST RF TEST JACK
11:58:52    TESTSIG:
11:58:52    TESTSIG:ENTER LINE NUMBER.
```

Figure C-10. RIOS and Associated Menus
(Sheet 2 of 4)

```
11:59:30    TESTSIG:*****************************************************
11:59:30    TESTSIG:              DETECTED IF SELECTION MENU        PAGE 1
11:59:30    TESTSIG:
11:59:30    TESTSIG:    LINE  COMMANDS            DESCRIPTION
11:59:30    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
11:59:30    TESTSIG:    01    PAGE2       PAGE 2 OF IF SELECTION MENU
11:59:30    TESTSIG:    02    A5J3        MIXER/PREAMP OUTPUT
11:59:30    TESTSIG:    03    A5J7        MIXER/PREAMP OUTPUT TEST JACK
11:59:30    TESTSIG:    04    A9J1        AGC ATTENUATOR OUTPUT
11:59:31    TESTSIG:    05    A9J3        AGC ATTENUATOR OUTPUT TEST JACK
11:59:31    TESTSIG:    06    A9J2        AMPLIFIER/LIMITER OUTPUT
11:59:31    TESTSIG:    07    A9J4        AMPLIFIER/LIMITER OUTPUT TEST JACK
11:59:31    TESTSIG:    08    A8J1        AGC ATTENUATOR INPUT
11:59:31    TESTSIG:    09    A8J3        AGC ATTENUATOR INPUT TEST JACK
11:59:31    TESTSIG:    10    A10J2       COHO INPUT TO I/Q DETECTOR
11:59:31    TESTSIG:    11    A10J3       COHO TEST JACK
11:59:31    TESTSIG:
11:59:31    TESTSIG:ENTER LINE NUMBER.
```

```
11:59:34    TESTSIG:*****************************************************
11:59:34    TESTSIG:              DETECTED IF SELECTION MENU         PAGE 2
11:59:34    TESTSIG:
11:59:34    TESTSIG:    LINE  COMMANDS            DESCRIPTION
11:59:34    TESTSIG:    00    RETURN     RETURN TO SOURCE CONTROL MENU
11:59:34    TESTSIG:    01    PAGE1      PAGE 1 OF IF SELECTION MENU
11:59:34    TESTSIG:    02    A6J2       BANDPASS FILTER OUTPUT
11:59:34    TESTSIG:    03    A6J4       BANDPASS FILTER OUTPUT TEST JACK
11:59:34    TESTSIG:    04    A14J2      GUARDBAND (+) AMP OUT
11:59:34    TESTSIG:    05    A14J4      GUARDBAND (+) AMP OUT TEST JACK
11:59:34    TESTSIG:    06    A14J3      GUARDBAND (-) AMP OUT
11:59:34    TESTSIG:    07    A14J5      GUARDBAND (-) AMP OUT TEST JACK
11:59:34    TESTSIG:    08    A15J2      GUARDBAND (+) LOG DET INPUT
11:59:35    TESTSIG:    09    A15J3      GUARDBAND (+) LOG DET INPUT TEST JACK
11:59:35    TESTSIG:    10    A16J2      GUARDBAND (-) LOG DET INPUT
11:59:35    TESTSIG:    11    A16J3      GUARDBAND (-) LOG DET INPUT TEST JACK
11:59:35    TESTSIG:
11:59:35    TESTSIG:ENTER LINE NUMBER.
```

Figure C-10. RIOS and Associated Menus
(Sheet 3 of 4)

```
11:59:34    TESTSIG:*****************************************************
11:59:34    TESTSIG:              DETECTED IF SELECTION MENU         PAGE 2
11:59:34    TESTSIG:
11:59:34    TESTSIG:    LINE  COMMANDS             DESCRIPTION
11:59:34    TESTSIG:    00    RETURN
11:59:34    TESTSIG:    01    PAGE1        PAGE 1 OF IF SELECTION MENU
11:59:34    TESTSIG:    02    A6J2         BANDPASS FILTER OUTPUT
11:59:34    TESTSIG:    03    A6J4         BANDPASS FILTER OUTPUT TEST JACK
11:59:34    TESTSIG:    04    A14J2        NO ISU PRESENT
11:59:34    TESTSIG:    05    A14J4        NO ISU PRESENT
11:59:34    TESTSIG:    06    A14J3        NO ISU PRESENT
11:59:34    TESTSIG:    07    A14J5        NO ISU PRESENT
11:59:34    TESTSIG:    08    A15J2        NO ISU PRESENT
11:59:35    TESTSIG:    09    A15J3        NO ISU PRESENT
11:59:35    TESTSIG:    10    A16J2        NO ISU PRESENT
11:59:35    TESTSIG:    11    A16J3        NO ISU PRESENT
11:59:35    TESTSIG:
11:59:35    TESTSIG:ENTER LINE NUMBER.
```

Figure C-10. RIOS and Associated Menus
(Sheet 4 of 4)

```
08:24:13    TESTSIG:*****************************************************
08:24:13    TESTSIG:     RECEIVER TEST A/D BANDWIDTH SELECTION MENU
08:24:13    TESTSIG:
08:24:13    TESTSIG:    LINE  COMMANDS            DESCRIPTION
08:24:13    TESTSIG:    00    RETURN      RETURN TO SOURCE CONTROL MENU
08:24:13    TESTSIG:    01    WIDE        WIDE BAND
08:24:13    TESTSIG:    02    MEDIUM      MEDIUM BAND  (500 HZ)
08:24:13    TESTSIG:    03    NARROW      NARROW BAND (1200 HZ)
08:24:13    TESTSIG:
08:24:13    TESTSIG:ENTER LINE NUMBER.
```

Figure C-11. Test A/D Bandwidth Selection Menu

```
13:31:24    DAUDSP:     DISCRETE DATA               BYTE/BIT   FUNC.=  RCVD
13:31:25    DAUDSP:     -------------               --------   ------  ----
13:31:25    DAUDSP:     FILAMENT PS OFF             0/D0         1       0
13:31:25    DAUDSP:     KLYSTRON PREHEAT            0/D1         1       0
13:31:25    DAUDSP:     TRANSMITTER NOT AVAILABLE   0/D2         1       0
13:31:25    DAUDSP:     W/G SWITCH DUMMY LOAD       0/D3         1       1
13:31:25    DAUDSP:     W/G/PFN TRANSFER INTERLOCK  0/D4         1       0
13:31:25    DAUDSP:     MAINT. MODE/NO CONTROL      0/D5         1       0
13:31:25    DAUDSP:     MAINTENANCE WORK REQUIRED   0/D6         1       0
13:31:25    DAUDSP:     PFN SWITCH LONG PULSE       0/D7         1       0
13:31:26    DAUDSP:     + 5 VDC PS SUMMARY FAULT    1/D0         1       0
13:31:26    DAUDSP:     +15 VDC PS SUMMARY FAULT    1/D1         1       0
13:31:26    DAUDSP:     +28 VDC PS SUMMARY FAULT    1/D2         1       0
13:31:26    DAUDSP:     -15 VDC PS SUMMARY FAULT    1/D3         1       0
13:31:26    DAUDSP:     +45 VDC PS SUMMARY FAULT    1/D4         1       0
13:31:26    DAUDSP:     FILAMENT PS VOLTAGE         1/D5         1       0
13:31:26    DAUDSP:     VACUUM PUMP PS VOLTAGE      1/D6         1       0
13:31:26    DAUDSP:     FOCUS COIL PS VOLTAGE       1/D7         1       0
13:31:26    DAUDSP:
13:31:26    DAUDSP:                                       PAGE  1 OF 10
13:31:27    DAUDSP:
13:31:27    DAUDSP:ENTER PAGE NUMBER, <CR> TO REPEAT PAGE, OR 0 TO EXIT
```

Figure C-12. Typical DAU BITE Display (Discrete)

```
13:31:33    DAUDSP:     ANALOG DATA       BYTE/BIT    RCVD.
13:31:33    DAUDSP:     -----------       --------    -----
13:31:34    DAUDSP:     MC +28V PS        46/D0-D7    +27.85  V
13:31:34    DAUDSP:     MC +15V PS        47/D0-D7    +14.84  V
13:31:34    DAUDSP:     MC + 5V PS        48/D0-D7    +4.61  V
13:31:34    DAUDSP:     SPARE 49/D0-D7    -
13:31:34    DAUDSP:     SPARE 50/D0-D7    -
13:31:34    DAUDSP:     SPARE 51/D0-D7    -
13:31:34    DAUDSP:     PED -15V PS       52/D0-D7    -15.08  V
13:31:34    DAUDSP:     SPARE 53/D0-D7    -
13:31:34    DAUDSP:     SPARE 54/D0-D7    -
13:31:35    DAUDSP:     MC -15V PS        55/D0-D7    -15.00  V
13:31:35    DAUDSP:     SPARE 56/D0-D7    -
13:31:35    DAUDSP:     DAU TEST 0        57/D0-D7    +9
13:31:35    DAUDSP:     DAU TEST 1        58/D0-D7    +125
13:31:35    DAUDSP:     DAU TEST 2        59/D0-D7    +232
13:31:35    DAUDSP:     SPARE             60/D0-D7    -
13:31:35    DAUDSP:     SPARE             61/D0-D7    -
13:31:35    DAUDSP:
13:31:35    DAUDSP:                                          PAGE 10 OF 10
13:31:36    DAUDSP:
13:31:36    DAUDSP:ENTER PAGE NUMBER, <CR> TO REPEAT PAGE, OR 0 TO EXIT
```

Figure C-13. Typical DAU BITE Display (Analog)

```
13:52:58   RDASOTXX:TIME 13:52:58   7  JANUARY   1998
```

```
13:52:58   RDASOTXX:*****************************************************
13:52:58   RDASOTXX:*  ADAPTATION  FILE    :     ADAPTCUR.DAT/0           *
13:52:58   RDASOTXX:*  CALIBRATION FILE    :     RDACALIB.DAT/0           *
13:52:58   RDASOTXX:*  LONG TERM CALIB FILE:     LONGTERM.DAT/0           *
13:52:58   RDASOTXX:*****************************************************
13:52:58   RDASOTXX:*       RDA ADAPTATION DATA FILE IDENTIFICATION       *
13:52:58   RDASOTXX:*****************************************************
13:52:58   RDASOTXX:*  TYPE   :    CURRENT *  INTERNAL NAME: ADAPTCUR.DAT *
13:52:58   RDASOTXX:*  FORMAT :       10.0 *  REVISION     :         M001 *
13:52:59   RDASOTXX:*  DATE   :   12/30/97 *  TIME         :     15:20:26 *
13:52:59   RDASOTXX:*****************************************************
13:52:59   RDASOTXX:                      MAIN MENU
13:52:59   RDASOTXX:
13:52:59   RDASOTXX:LINE  COMMANDS             DESCRIPTION
13:52:59   RDASOTXX: 00   RETURN    TERMINATE RDASOT
13:52:59   RDASOTXX: 01   RMSESN    RECORD MAINTENANCE SESSION
13:52:59   RDASOTXX: 02   DGMENU    DIAGNOSTIC MENU
13:52:59   RDASOTXX: 03   CLMENU    CALIBRATION MENU
13:53:00   RDASOTXX: 04   CDMENU    MANUAL CONTROL AND DISPLAY MENU
13:53:00   RDASOTXX:
13:53:00   RDASOTXX:ENTER LINE NUMBER.
13:53:37   RDASOTXX:4
13:53:37   RDASOTXX:*****************************************************
13:53:37   RDASOTXX:           MANUAL CONTROL AND DISPLAY MENU
13:53:37   RDASOTXX:
13:53:37   RDASOTXX:LINE  COMMANDS             DESCRIPTION
13:53:37   RDASOTXX: 00   RETURN    RETURN TO MAIN MENU
13:53:37   RDASOTXX: 01   PEDMCD    CONTROL PEDESTAL
13:53:37   RDASOTXX: 02   TESTSIG   CONTROL RCVR/SIGNAL PROC
13:53:38   RDASOTXX: 03   DAUDSP    DAU BITE DISPLAY
13:53:38   RDASOTXX: 04   PSPDWNLD  DOWNLOAD PSP
13:53:38   RDASOTXX:
13:53:38   RDASOTXX:ENTER LINE NUMBER.
13:53:41   RDASOTXX:1
13:53:42   PEDMCD:*****************************************************
13:53:42   PEDMCD:               PEDMCD FUNCTION SELECTION MENU
13:53:42   PEDMCD:
13:53:42   PEDMCD:LINE  COMMANDS             DESCRIPTION
13:53:42   PEDMCD: 00   RETURN     RETURN TO MCD MENU
13:53:42   PEDMCD: 01   DISPOS     DISPLAY POSITION
13:53:42   PEDMCD: 02   PRKPED     PARK PEDESTAL
13:53:42   PEDMCD: 03   PEDMC      PEDESTAL MANUAL CONTROL
13:53:42   PEDMCD: 04   TOGGLE     RECORD DATA....NO
13:53:42   PEDMCD: 05   VIEW       LOOK AT RECORDED PEDESTAL DATA
13:53:42   PEDMCD:
13:53:42   PEDMCD:ENTER LINE NUMBER.
13:53:48   PEDMCD:4
13:53:48   PEDMCD:*****************************************************
13:53:48   PEDMCD:               PEDMCD FUNCTION SELECTION MENU
13:53:48   PEDMCD:
13:53:48   PEDMCD:LINE  COMMANDS             DESCRIPTION
13:53:48   PEDMCD: 00   RETURN     RETURN TO MCD MENU
13:53:48   PEDMCD: 01   DISPOS     DISPLAY POSITION
13:53:48   PEDMCD: 02   PRKPED     PARK PEDESTAL
```

```
13:53:48   PEDMCD: 03   PEDMC      PEDESTAL MANUAL CONTROL
13:53:48   PEDMCD: 04   TOGGLE     RECORD DATA....YES
13:53:49   PEDMCD: 05   VIEW       LOOK AT RECORDED PEDESTAL DATA
13:53:49   PEDMCD:
13:53:49   PEDMCD:ENTER LINE NUMBER.
13:53:55   PEDMCD:3
13:54:03   PEDMCD:         PEDESTAL VALUES
13:54:03   PEDMCD:
13:54:03   PEDMCD:  AZ POS  EL POS  AZ RATE  EL RATE
13:54:03   PEDMCD:  ------  ------  -------  -------
13:54:03   PEDMCD:   +0.04  +23.03    +0.00    +0.00
13:54:03   PEDMCD:**************************************************
13:54:03   PEDMCD:    PEDESTAL MANUAL CONTROL MENU
13:54:04   PEDMCD:
13:54:04   PEDMCD:LINE  COMMANDS             DESCRIPTION
13:54:04   PEDMCD: 00  RETURN    TERMINATE MANUAL CONTROL
13:54:04   PEDMCD: 01  AZPOS     COMMAND AZIMUTH POSITION
13:54:04   PEDMCD: 02  ELPOS     COMMAND ELEVATION POSITION
13:54:04   PEDMCD: 03  AZRATE    COMMAND AZIMUTH RATE
13:54:04   PEDMCD: 04  ELRATE    COMMAND ELEVATION RATE
13:54:04   PEDMCD: 05  DISRAP    DISPLAY RATE AND POSITION
13:54:04   PEDMCD:
13:54:04   PEDMCD:ENTER LINE NUMBER.
13:54:12   PEDMCD:3
13:54:12   PEDMCD:INPUT AZIMUTH RATE
13:54:12   PEDMCD:VALID ENTRIES ARE -36.00 TO +36.00 DEGREES/SECOND:
13:54:12   PEDMCD:FORMAT = XX.XX
13:54:16   PEDMCD:22.22
13:54:18   PEDMCD:         PEDESTAL VALUES
13:54:18   PEDMCD:
13:54:18   PEDMCD:  AZ POS  EL POS  AZ RATE  EL RATE
13:54:18   PEDMCD:  ------  ------  -------  -------
13:54:18   PEDMCD:  +17.40  +23.03   +22.30    -0.08
```

Figure C-14. Use of Pedestal Control Function

```
IN FLAGS:  "XXX------" = I/O BUFFER INDEX
            "---X-----" = INPROGRESS
            "----X----" = CHK_BIT_DATA
            "-----X---" = AZ_RATE_DISPLAY
            "------X--" = EL_RATE_DISPLAY
            "-------X-" = AZ_RATE_CALC
            "--------X" = EL_RATE_CALC

 *****************************************
```

IN	FLAGS	TIME	DEL	AZ_POS	EL_POS	AZ_RAT	EL_RAT	AZ_C	EL_C	B	BC	BIT DATA
4	FFTTTT	50041526	45	0.13	23.07	0.00	0.00	3E	107C			
5	FFTTTT	50041571	45	0.13	23.07	0.00	0.00	3E	107C			
6	FFTTTT	50041616	45	0.13	23.07	0.00	0.00	3E	107C			
7	FFTTTT	50041661	45	0.13	23.07	0.00	0.00	3E	107C			
8	FFTTTT	50041706	45	0.13	23.07	0.00	0.00	3E	107C			
9	FFTTTT	50041751	45	0.13	23.07	0.00	0.00	3E	107C			
10	FFTTTT	50041796	45	0.13	23.07	0.00	0.00	3E	107C			
11	FFTTTT	50041841	45	0.13	23.07	0.00	0.00	3E	107C			
12	FFTTTT	50041886	45	0.13	23.07	0.00	0.00	3E	107C			
13	FFTTTT	50041931	45	0.13	23.07	0.00	0.00	3E	107C			
14	FFTTTT	50041976	45	0.13	23.07	0.00	0.00	3E	107C			
15	FFTTTT	50042021	45	0.13	23.07	0.00	0.00	3E	107C			
16	FFTTTT	50042066	45	0.13	23.07	0.00	0.00	3E	107C			
17	FFTTTT	50042111	45	0.13	23.07	0.00	0.00	3E	107C			
18	FFTTTT	50042156	45	0.13	23.07	0.00	0.00	3E	107C			
19	TFTTTT	50042201	45	0.13	23.07	0.00	0.00	3F3A	107C			
20	TFTTTT	50042246	45	0.13	23.07	0.00	0.00	3F3A	107C			
21	TFTTTT	50042291	45	0.13	23.07	0.00	0.00	3F3A	107C			
22	TFTTTT	50042336	45	0.13	23.07	0.00	0.00	3F3A	107C			
23	TFTTTT	50042381	45	0.13	23.07	0.00	0.00	3F3A	107C			
24	TFTTTT	50042426	45	0.13	23.07	0.00	0.00	3F3A	107C			
25	TFTTTT	50042471	45	0.13	23.07	0.00	0.00	3F3A	107C			
26	TFTTTT	50042516	45	0.22	23.07	0.98	0.00	3F3A	107C			
27	TFTTTT	50042561	45	0.26	23.07	1.46	0.00	3F3A	107C			
28	TFTTTT	50042606	45	0.40	23.07	2.93	0.00	3F3A	107C			
29	TFTTTT	50042651	45	0.57	23.07	3.58	0.00	3F3A	107C			
30	TFTTTT	50042696	45	0.75	23.07	4.88	0.00	3F3A	107C			
31	TFTTTT	50042741	45	0.97	23.07	5.37	0.00	3F3A	107C			
32	TFTTTT	50042786	45	1.19	23.07	5.54	0.00	3F3A	107C			
33	TFTTTT	50042831	45	1.49	23.07	6.51	0.00	3F3A	107C			
34	TFTTTT	50042876	45	1.80	23.07	7.16	0.00	3F3A	107C			
35	TFTTTT	50042921	45	2.15	23.07	8.46	0.00	3F3A	107C			
36	TFTTTT	50042966	45	2.55	23.07	8.95	0.00	3F3A	107C			
37	TFTTTT	50043011	45	2.99	23.07	10.10	0.00	3F3A	107C			
38	TFTTTT	50043056	45	3.47	23.07	11.06	0.00	3F3A	107C			
39	TFTTTT	50043101	45	3.96	23.07	11.72	0.00	3F3A	107C			
40	TFTTTT	50043146	45	4.48	23.07	12.21	0.00	3F3A	107C			
41	TFTTTT	50043191	45	5.05	23.07	12.70	0.00	3F3A	107C			
42	TFTTTT	50043236	45	5.67	23.07	13.83	0.00	3F3A	107C			

(Note: Start Azimuth Change)

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43 TFTTTT 50043281  45   6.28  23.07  14.49   0.00 3F3A 107C
44 TFTTTT 50043326  45   6.94  23.07  15.14   0.00 3F3A 107C
45 TFTTTT 50043371  45   7.65  23.07  15.62   0.00 3F3A 107C
46 TFTTTT 50043416  45   8.39  23.07  16.77   0.00 3F3A 107C
47 TFTTTT 50043461  45   9.14  23.07  17.41   0.00 3F3A 107C
48 TFTTTT 50043506  45   9.98  23.07  18.56   0.00 3F3A 107C
49 TFTTTT 50043551  45  10.81  23.07  19.04   0.00 3F3A 107C
50 TFTTTT 50043596  45  11.65  23.07  19.70   0.00 3F3A 107C
51 TFTTTT 50043641  45  12.57  23.07  20.18   0.00 3F3A 107C
52 FFTTTT 50043686  45  13.49  23.07  20.83   0.00 3F3A 107C (Note: Azimuth
                                                            Change of 1
                          ┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─degree per dis-
                          ▼                                 play)
53 FFTTTT 50043731  45  14.46  23.03  21.97  -0.08 3F3A 107C
54 FFTTTT 50043776  45  15.42  23.03  22.14  -0.08 3F3A 107C
55 FFTTTT 50043821  45  16.39  23.03  22.30  -0.08 3F3A 107C
56 FFTTTT 50043866  45  17.40  23.03  22.30  -0.08 3F3A 107C
57 FFTTTT 50043911  45  18.41  22.98  22.62  -0.16 3F3A 107C
58 FFTTTT 50043956  45  19.42  22.98  22.95  -0.16 3F3A 107C
59 FFTTTT 50044001  45  20.43  22.98  22.79  -0.16 3F3A 107C
```

Figure C-15. PEDSOT.DAT coresponding to Figure C-14